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THE UNIVERSITY OF ALBERTA

A DESCRIPTION OF OBSERVED ORAL READING PHENOMENA  
OF GRADE FOUR CHILDREN

BY



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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE  
OF MASTER OF EDUCATION

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA

FALL, 1970





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UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled A Description of Observed Oral Reading Phenomena of Grade Four Children, submitted by Florence Muriel Becker in partial fulfilment of the requirements for the degree of Master of Education.





## ABSTRACT

The need for research to describe more precisely the reading of children at various grade levels has recently been realized. The development of a reading program necessitates this knowledge. Therefore, the purpose of the present study was to describe the reading phenomena of grade four children, average in reading achievement.

The population consisted of all children attending grade four classes in the Edmonton Public School System. From three schools ninety-four children from eleven classes were selected on the basis of California Reading Test results and were all within a one-year range of reading achievement. Intelligence scores and sex data were obtained from school records.

The reading material selected for the children was a short narrative. Each child read the selection orally without aid and then retold the story as a comprehension check. The child's comprehension was scored by the investigator listening to the retelling of the story from the taped interview, according to a measure for comprehension rating. Oral reading errors were categorized according to the Goodman Taxonomy of Miscues.

Both formal and informal descriptions of the data were used. A hypothesis was formulated and tested statistically, using t-tests, a one-way analysis of variance, and tests for the difference between





proportions.

The hypothesis tested the difference in oral readers by sex, reading achievement scores, and intelligence scores, in their number of miscues, their per cent of miscues corrected, and their per cent of miscues according to type of miscue and level of language.

Findings from statistical and non-statistical analyses indicated that pupil-groups did not differ significantly in their number of miscues although the number of miscues tended to increase with increased comprehension. Some children with near-perfect oral reading did not have a good understanding of what they read. More than three-fourths of all miscues were not corrected. Generally, number of corrections decreased as comprehension increased. Better readers corrected only those miscues which made a difference in meaning. Balance in the use of grapho-phonemic and syntactic-semantic cues was seen as a mark of reading proficiency; children who overused grapho-phonemic cues within words understood less of what they read.

Conclusions, implications, and suggestions for further research were drawn from the data also.





## ACKNOWLEDGEMENTS

The writer wishes to express her sincere appreciation to Dr. Jean Robertson, Chairman of the thesis committee, for her helpful advice and guidance during all phases of the study.

Thanks is extended to the other members of the committee, Dr. Lillian Whyte and Professor W. D. Wilde.

The advice of Dr. George Cathcart in the statistical analysis of the data is gratefully acknowledged.

The writer is appreciative of assistance provided by the Edmonton Public School Board and acknowledges with thanks the cooperation of the principals, teachers, and pupils of the schools involved in this investigation.

Gratitude is expressed to friends and colleagues for their help and encouragement, to Mrs. Marcia Shepert for the typing of the thesis, and to family members for their support and encouragement.



## TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION . . . . .	1
	Statement of the Problem . . . . .	3
	The Purpose of the Study . . . . .	8
	The Description of Reading Phenomena . . . . .	8
	Definition of Terms . . . . .	10
	Organization of the Study . . . . .	11
	Limitations . . . . .	12
	The Significance of the Study . . . . .	13
	Summary. . . . .	13
II.	BACKGROUND OF THE STUDY . . . . .	15
	Language . . . . .	16
	The Development of Language and Thought in the Child . . . . .	28
	Differences between Oral and Written Language . . . . .	37
	The Reading Process . . . . .	45
	Oral Reading Errors . . . . .	60
	Summary . . . . .	69
III.	DESIGN OF THE STUDY . . . . .	71
	The Test Sample. . . . .	71
	The Selection of Reading Material . . . . .	74





CHAPTER	PAGE
The Collection of Data . . . . .	75
A Taxonomy of Reading Miscues . . . . .	77
The Comprehension Rating . . . . .	92
Inter-Judge Reliability . . . . .	92
Statistical Treatment of the Data . . . . .	93
Summary. . . . .	94
IV. FINDINGS OF THE STUDY . . . . .	95
Reliability of Scoring . . . . .	95
Children's Number of Miscues . . . . .	96
Children's Corrections of Miscues . . . . .	104
Children's Miscues by Types and by Levels of Language . . . . .	120
Children's Comprehension of the Reading Selection . . . . .	157
Summary. . . . .	172
V. SUMMARY, MAIN FINDINGS, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH . . . . .	176
Summary. . . . .	176
Main Findings . . . . .	177
Conclusions. . . . .	186
Implications . . . . .	190





CHAPTER	PAGE
Suggestions for Further Research. . . . .	195
BIBLIOGRAPHY . . . . .	197
APPENDIX A. Goodman's Taxonomy of Reading Miscues . . . . .	208
APPENDIX B. Copy of Story Used in the Study . . . . .	214
APPENDIX C. Copy of Typical Worksheet . . . . .	218
APPENDIX D. Transcript of a Story Retold by a Child . . . . .	222
APPENDIX E. Comprehension Rating . . . . .	224



## LIST OF TABLES

TABLE	PAGE
I. Reading Achievement Level of Pupils . . . . .	3
II. Pupil Test Sample . . . . .	72
III. Number of Miscues by Sex Groups and Their Significance . . . . .	98
IV. Number of Miscues by Reading Achievement Groups and Their Significance . . . . .	100
V. Number of Miscues by I.Q. Groups and Their Significance . . . . .	101
VI. Miscues Corrected by Sex Groups and Their Significance . . . . .	106
VII. Miscues Corrected by Reading Achievement Groups and Their Significance . . . . .	107
VIII. Miscues Corrected by I.Q. Groups and Their Significance . . . . .	109
IX. Correlations between Number of Corrections by Groups and Their Comprehension Scores . . . . .	111
X. Summary of Miscues Corrected by Pupil Groups . . . . .	118
XI. Per Cent of Types of Miscues . . . . .	120
XII. Difference in Proportions of Miscue Types by Sex Groups . . . . .	123





TABLE	PAGE
XIII. Difference in Proportions of Miscue Types by Achievement Groups . . . . .	126
XIV. Difference in Proportions of Miscue Types by I.Q. Groups . . . . .	128
XV. Miscues Made at Different Levels of Language . . . . .	130
XVI. Difference in Proportions of Miscues by Sex Groups at Different Levels of Language . . . . .	132
XVII. Difference in Proportions of Miscues by Achievement Groups at Different Levels of Language . . . . .	135
XVIII. Difference in Proportions of Miscues by I.Q. Groups at Different Levels of Language . . . . .	137
XIX. Graphic Miscues by Per Cent . . . . .	140
XX. Phonemic Miscues by Per Cent . . . . .	143
XXI. Correlations between Graphic and Phonemic Miscues by Groups . . . . .	145
XXII. Difference in Proportions of Miscues Which Did Not Change Syntax and Miscues Which Did Not Change Meaning, and Correlations between the Number of Miscues Which Did Not Change Syntax and the Number of Miscues Which Did Not Change Meaning . . . . .	153



TABLE		PAGE
XXIII.	Correlation between Number of Graphic and Phonemic Miscues with Number of Miscues Unchanged in Syntax and Meaning . . .	155
XXIV.	Mean Comprehension Score by Groups . . .	159





## LIST OF FIGURES

FIGURE	PAGE
1. Comparison of Mphw with Per Cent of Micues Corrected in the Groups . . . . .	117



## CHAPTER 1

### INTRODUCTION

Reading may be considered to be an interaction between the reader and the printed page, "a reciprocal process between the printed symbols and the mind of the reader" (Jenkinson, 1960).

This two-way process depends upon the sharing of common experiences and common symbols which represent these experiences by author and reader.

Language is the vehicle of both oral and written communications. Oral language, which is the primary form and the basis of written language, is expressed through sound units or phonemes. The expression of written language is transmitted by an association of phonemes with letter symbols, and requires the student to use his knowledge of both oral and written language. Thus, communication by written language is a more complex process than by oral language, requiring, as it does, the integration of both oral language and graphic cues to identify words and other language structures on the printed page.

By the time the child begins school he is able to use "the fundamental structures of the English language and the major sound patterns of the English sentence" (Smith, 1963:13). This ability helps him in predicting what will come next in the oral language he hears, and as



he learns to read, in the written language he reads. His ears pick up only certain parts of what is said. Even when he cannot hear a series of sounds or words, he is able from the context to fill them in for himself and arrive at the meaning of the message. In much the same way the child attends to certain elements in written language. He is able to use certain graphic cues, along with his knowledge of syntax and meaning, to predict what will follow. When there is conflict between what he sees and what is meaningful and sounds right, the good reader re-reads for more accurate communication.

The meaning which the reader draws from his reading depends upon his use of word-attack skills (cues within words, and the use of learning strategies that involve specific responses to these cues); language cues (patterns of word order, inflectional agreement, contextual meaning); and cues within the reader (experiential background, conceptual background, and strategies of learning). There may be cues from the teacher, the blackboard, charts, etc., as well. Because each reader is an individual with experiences, mental abilities, and personality traits which are unique, the cues he chooses and the strategies he uses in reading will also be unique. Thus the meaning the reader derives from the printed page depends upon what the reader brings to the printed page.

Whether the author effectively communicates with the reader is, of course, dependent also upon the author's style of writing. If the author uses words and other language structures familiar to the reader, and





if the content and concepts approximate the conceptual level and experience of the child, then accurate communication is possible once the written code is translated into the oral code. However, problems can arise as a result of the child's inability or inexperience to interpret the symbols the writer has chosen to use. If the reader's background of experience is inadequate for him to cope with the material he is attempting to read, the two-way process is short-circuited.

### I. STATEMENT OF THE PROBLEM

"Everyone . . . knows that many children in our schools become excellent readers, but we cannot truly say why some succeed, while many others miserably and tragically fail" (Lefevre, 1964: 16).

#### The Situation at Present

A recent survey involving 120 elementary classrooms in the Greater New Orleans Area (Marcus, 1968: 162) revealed the following data regarding the reading achievement of the pupils:

TABLE 1  
READING ACHIEVEMENT LEVEL OF PUPILS

Grade level	% Below Grade Level	% Above Grade level	% at Grade Level
1	22	24	54
2	28	17	55
3	34	18	48
4	40	22	38
5	53	14	33
6	34	27	39



The above table indicates that 22 per cent of all grade one pupils were considered by their teachers to be below their grade level in reading achievement, 24 per cent were considered to be above grade level, and 54 per cent at grade level. Although a wide range of achievement is to be expected within any one grade, it will be noted that the per cent below grade level steadily increases at each grade from one to five, while the per cent above grade level and at grade level generally decreases from grade one to grade five.

It is evident from these figures that many problems in reading have not been solved. A particularly critical point is reached in the middle grades. It is of interest that 100 per cent of the fourth-grade teachers in the study considered the following to be problems: word attack skills, vocabulary, comprehension, rate, providing for individual differences, and reading in content areas.

These findings are not surprising when one considers the variety and volume of reading materials which the child in grade four is expected to read and understand. Although it is likely that the emphasis in his first three years of school has been on word recognition, he is now expected to be a functional reader, able to apply his skills to all types of reading. Not only must he deal with sentence complexity but he has the additional comprehension hurdles of technical vocabulary, unfamiliar writing styles, and new and different concepts in the science, social studies, and mathematics content areas. At the same time he must





comprehend units of increasing length, and by the manipulation of phrases and clauses, relate one concept with another concept. It is likely, too, that the grade four child's cognitive development has not reached the point at which he can grasp clearly the meaning of a sentence in which he must associate ideas in coordinate and subordinate relationships. The variety and complexity of reading problems faced by grade four children suggests the need for new knowledge about reading behavior.

### The Problem

More needs to be known about what the child does when he reads. From the the beginning stages of learning to read in narrative material, the child's comprehension depends upon his use of word-attack skills as well as his experience with the meaning of words and word sequences. The child who is too dependent upon word-attack skills may have a problem in understanding what he reads, while the child who is over-dependent upon the syntax and its accompanying meaning may not identify correctly the letter and word sequence of the graphic display. How the child uses and integrates contextual and phonic skills as he reads needs careful investigation. One way to investigate reading behavior is by oral reading for although there has been a great deal of reading research done, there is a scarcity of information concerning the kinds of oral response children make to the printed page at different levels of



reading proficiency, and the effect of these responses upon comprehension. Robinson (1968: 401-402) suggests that a carefully planned examination of children's reading behavior would reveal a wealth of information. There is a need to know what is typical reading behavior at each level of proficiency. Research could provide data at the different developmental levels of reading proficiency. This knowledge could then be pooled to afford a guide for reading instruction, reading methods, and reading materials.

However, before investigating the reading behavior of children either above or below average reading achievement, it is important to know what is the typical reading behavior of children average in reading achievement. When it has been established what "average" readers do when they read, comparisons can then be made to determine how reading behavior differs at the various achievement levels.

Perhaps a description of oral reading phenomena of grade four children, average in reading achievement, might complement similar research at other levels to provide new insights into what happens when children read.

#### The Approach to the Investigation of Reading Behavior

Goodman (1967a) points out that researchers in reading must be knowledgeable about both psychological and linguistic principles. In her longitudinal study of the oral reading errors of six young readers,



Goodman used the psycholinguistic method, which involves the careful description of changes in reading behavior of individual children, the drawing of inferences from the data and from observation, and the stating of hypotheses based upon these inferences, for verification through further testing as evidenced from oral reading.

Goodman and Goodman (1965: 3-24) have developed a taxonomy of miscues by which oral reading behavior may be analyzed in depth. The taxonomy allows each miscue to be analyzed in the light of its effect on the meaning of a sentence or a passage. They believe that it is their quality that is important; some are better than others for they make no difference in the effectiveness of a communication. Even as the child makes miscues, he may be working out a strategy for himself which will eventually allow him to gain greater meaning from his reading. Ilg and Ames (1950: 309) believed that certain oral reading errors may simply be indicative of a certain level of skill, giving clues to the rate of the child's progress and his level of proficiency. In much the same vein, Goodman (1965) regards regressions in reading as a correctional device, and as such, an aid to comprehension.

If corrections are a phenomenon through which a child reveals his progress in understanding, it might be profitable to know the percentage of reading miscues corrected at grade four. Since we must learn about average reading behavior before we can talk about others, an analysis of these oral reading miscues of average grade four readers may provide





a productive focus for the study of the reading process. Through them it may be possible to gain valuable information as to basic developmental or strategic differences between boys and girls or between different I.Q. groups at fourth grade level.

Several studies have shown girls to be superior to boys in language ability (Stroud and Lindquist, 1942; Bear, 1939). An indepth study and comparison of their miscues in oral reading may show how effectively boys and girls in grade four integrate cues from the printed material, from the structure of the language, and from their own language and experience.

## II. THE PURPOSE OF THE STUDY

The purpose of this study was to describe the reading phenomena of grade four students who are average in reading achievement, through a linguistic analysis of miscues in their oral reading, using the Goodman Taxonomy (Appendix A).

## III. THE DESCRIPTION OF READING PHENOMENA

The description of the reading phenomena, using the Goodman Taxonomy, was organized under the following headings:

- I. Children's number of miscues
- II. Children's corrections of miscues
- III. Children's miscues by types, and by levels of language
- IV. Children's comprehension of the reading selection.



The description of the reading phenomena was effected by two complementary modes of analysis — non-statistical and statistical — presented together under each of the above headings.

Non-statistical description included an informal analysis of miscues. The method of collecting data, which allowed the researcher to observe each child carefully and to play back, as often as needed, the individually taped interviews, gave ample opportunity for a close analysis of the reading behavior of the individual child.

Statistical results were computed in order to describe further the reading phenomena of grade four children average in reading achievement. The following null hypothesis was tested:

There is no significant difference in oral readers

- a) by sex
- b) by reading achievement scores
- c) by I.Q. scores

in the

1. number of miscues per hundred words (mphw).
2. proportion of miscues corrected by regression (the reading aloud of any part of the reading material).
3. proportion of miscues according to type of miscues and level of language. (See Chapter III, Section IV, for a discussion of "level of language.")



#### IV. DEFINITION OF TERMS

For the purpose of this investigation, the following definitions were used:

Psycholinguistics. Psycholinguistics is a scientific discipline applying the knowledge and basic principles from the fields of psychology and linguistics.

Taxonomy of Reading Miscues. This is a highly detailed classification system for analyzing errors in reading, developed by Goodman and Goodman (Appendix A).

Miscues. Miscues are unexpected oral responses to the printed material to be read; e.g. insertions, omissions, substitutions, and reversals of letters, words, or phrases, or an intonational pattern differing from the one indicated by punctuation.

Intonation. Intonation is the rhythm and tone of the language. It includes stress, pitch and juncture.

Regression. A regression is a repetition or re-reading aloud of any part of the reading material and may or may not contain miscues. Regressions were said to be correctional if they were made to change any response other than an intonational one. Regressions were said to be intonational if they were made to change the intonational stress, pitch, or juncture. Intonational regressions included also any overt re-reading which did not result in the changing of an original response.



Average Readers (L.A. and H.A.). The term "average readers" refers to the children selected for the sample who scored within .5 (six months) above or below the median score on the California Reading Test, Elementary Form X. That is, the range of reading scores for the entire test sample was one reading grade. For purposes of statistical analysis, this average test sample was sub-divided into High Average (H.A.) and Low Average (L.A.). Those above the median score were termed H.A., while those below the median score were termed L.A.

Oral Reading. Oral reading refers to the reading aloud, unassisted, of printed material seen for the first time by the reader.

## V. ORGANIZATION OF THE STUDY

Subjects for the study were grade four students in three schools of the Edmonton Public School System, designated as middle-class socio-economic areas by supervisory staff of the Edmonton Public School Board. A sample population of average readers was selected on the basis of results obtained from The California Reading Test, Elementary, Form X, administered to 276 children in these three schools during late April. Average readers were considered to be those scoring to six months above and six months below the median score. From the sample population, a test sample of 30 children was selected randomly to provide an equal number of boys and girls, as well as an equal number of subjects from each of the three schools. Information regarding I.Q. scores and sex





was obtained from the school records.

To carry out the purpose of this study, a narrative selection was chosen at the grade 4.9 readability level, as calculated according to the Dale-Chall Readability Formula (1948). The oral reading of the selection and the retelling of the story were elicited from each child, and taped. The oral reading miscues were carefully analyzed according to the Goodman Taxonomy. In addition to the analysis of miscues, reading regressions were counted, and categorized according to whether the regression occurred to change intonation or to correct a miscue, and whether the regression occurred at a word or phrase level. Comprehension was scored by listening to the retelling of the story from the taped interview and by studying the typewritten transcription (Appendix D). Rater agreement in the use of the Goodman Taxonomy of Reading Miscues and of the comprehension rating was determined.

Student's miscues were classified into categories of the taxonomy. This was a painstaking task, involving such decisions as type and level of each miscue, the effect of the miscue upon syntax and meaning, and whether or not the miscue was corrected. Oral reading phenomena were described both statistically and non-statistically; observations were made regarding individuals as well as groups. Category proportions were tested for significance to determine acceptance or rejection of the null hypothesis.

## VI. LIMITATIONS

1. Certain categories of the Goodman Taxonomy did not



accommodate some reading miscues of grade four.

2. Although the taxonomy allows for categorization of intonation miscues, the researcher's lack of knowledge in this area and the paucity of research to be found on intonation have restricted the findings in this area. The use of the term "average" is admittedly controversial, but in this study it refers to children who achieved from .5 below to .5 above the median score on the California Reading Test.

## VII. THE SIGNIFICANCE OF THE STUDY

This study was an attempt to describe, by an analysis of oral reading miscues, some of the reading phenomena of average grade four children. It was hoped that it might provide some insight into the underlying difficulties they must contend with, and the strategies they use to overcome them. This knowledge could then be applied to remedial reading by the reading specialist, to corrective and developmental reading by the classroom teacher, and in teacher-education courses. It may also give direction to those who prepare books and materials for children to read.

## VIII. SUMMARY

If the purpose of reading is to effect communication between reader and author, then the purpose of the teacher of reading is to assist in this communication process. But teachers need to have a systematic



knowledge of how children learn to read if they are to approach their task with any depth of understanding. They must know whether certain phenomena at different stages in the child's reading development demand corrective or remedial attention, or whether they are merely benign and will disappear with further development. There is a need for more knowledge of this kind than we have at present.

Because of the close relationships between reading and oral language, it seems logical that a detailed linguistic analysis of oral reading errors, an analysis based upon the levels of the language, might reveal information about the process of reading unknown at this point. If it can be learned what children in grade four do when they read, then by inference it may be possible to gain insight into some of their problems and how to help them.



## CHAPTER II

### BACKGROUND OF THE STUDY

"Communication is the interchange of thoughts" (Smith, 1963:6).

This involves, in reading, the reconstruction by the reader of a message from the writer. The children in this study were faced with two tasks, reconstructing a message from the writer and communicating that reconstructed message to a listener. Cues from the page and cues from within themselves were used to effect these two tasks, as they actively employed their knowledge of language, their past experience and their conceptual attainments on the processing of language information encoded in the form of graphic symbols. Problems which they encountered can give us clues as to their level of proficiency, and the ways in which they are using and integrating their background of experience, their concepts, and their language.

The study of the total reading process, which necessitates the application to reading of linguistic and psychological principles of knowledge, is extremely complex. The purpose of this chapter is to provide a background of understanding of the psycholinguistic nature of the reading process. This will include a brief discussion of the language and the systems of language, the development of language and thought in the child, and the relationship between oral and written language. This will be followed by a section on the reading process.





Relevant research on oral reading miscues will be included also.

## I. LANGUAGE

Language is a structured system of arbitrary vocal sounds and symbols used as communication. The primary symbol-system of language is speech. Children learn to decode meaning from their aural input of the complete language, using the phonemic and grammatical structures of the language. These same sounds and structures are represented graphically in the secondary system which is based upon and derived from speech. Each element in this secondary system (letter, written word, or written group of words) corresponds to a specific element (sound or spoken word or spoken group of words) in the primary system, and may be substituted for it. Meaning can be aroused, then, by the association of visual symbols in the written language with known sound symbols in the oral language.

Stroud (1967) points out the remarkable sense in which linguistic behavior generalizes:

Once a pupil has acquired command of the structures of the language and its symbols, he can utilize these in all the ways language can be used: in talking, listening, reading, writing, and thinking (p. 128).

While there are important differences between these language modes which Stroud mentions, there are commonalities of which teachers of reading should be cognizant. The teacher whose task it is to guide the child as he learns to read will require some understanding of the



intricate and complicated mechanisms which the language actually uses in fulfilling its communicative function. This section will outline those inherent factors in language which make communication possible.

### Basic Elements of the English Language

Phonemes, morphemes, and syntactic structures are the basic elements of the English language.

Phonemes. The phoneme is the smallest significant unit of speech sound. Contrast between phonemes signals a difference in meaning. As the child's language develops, he acquires an unconscious knowledge of the combinatorial possibilities within the phonemic structure of his own language and he learns to attend to only those contrasts of sound which are meaningful in that language. For example, the child learns the words "get" and "pet" through the contrast of the sounds /g/ and /p/, the phonemes which give the two words different meanings. He pays no attention to the variant sounds of a basic phoneme such as the /p/ in "pin" and "spin", since these do not signify difference in meaning in the English language.

Many possible sounds and combinations of sounds do not occur in English. For example, the /ŋ/ phoneme, which is the last consonant sound of the word "king" is never used initially in an English word. Many clusters of consonants such as /mk/ or /dm/ do not occur at all either initially or finally in English. The expectation for certain



sequences of sound which the child develops can be transferred to the written language and is an aid to him in predicting the sequences of language he meets there. In oral reading, patterns of sound are particularly important. Tongue twisters, which cause difficulty in articulation, may be a contributing cause in the production of oral reading miscues. Children in the present study may read with fewer miscues if the material they read is written in familiar grammatical patterns, and in familiar sound sequences.

Morphemes. The morpheme is the basic meaning-bearing unit of language. It is an indivisible word or word part represented by phonemes used in sequence to form larger working units. A free morpheme is a morpheme which can be used by itself, for example, "sing." A bound morpheme must always be bound to another morpheme. Examples are "er" as in "singer", "ing" as in "singing", and "s" as in "sings." Most children know how to use these bound morphemes before they go to school, although they may not necessarily fully understand their meaning. A free morpheme presents comprehension problems when it has more than one meaning. Words with multiple meanings can be confusing to the child, as he listens and as he reads. The following sentences serve to illustrate this point:

1. She reached for the top rung of the ladder.
2. The child was spinning his new top.
3. Can you top this?



4. He reached the top in his profession.
5. John put the top on his pen.
6. To top off the dinner, they had a delicious dessert.
7. He was spattered with mud from top to toe.
8. He climbed on top of the house.
9. He blew his top when he became angry.

It is evident that a word's meaning which is not signaled phonemically is conveyed by context clues which help identify the particular applicable meaning out of the total range of meanings that the word carries. The importance of context for meaning is alluded to by Goodman (1967b: 291):

The basic units of speech are phonemes, but they have no existence outside of morphemes, the molecules of the language. Morphemes are the minimum units of language that can carry meaning, but they have no existence outside of syntactical structures. Syntactical structures, such as sentences, have reality only in the stream of language.

In this study, oral reading miscues will be investigated and categorized in the phonemic, morphemic, and syntactic levels, with a view to discovering the extent to which the miscues change the meaning. For example, the substitution of "now" for "not" is a miscue on both the phonemic and morphemic levels, and if it is in the sentence "He came back but not to a happy home," the meaning of the sentence is completely different as well. The Goodman Taxonomy allows for the categorization of miscues at each level of linguistic structure, thus making it possible to separate those miscues which are "better" than others.





Teachers who are aware of the consequences of miscues to meaning at different levels may, perhaps, disregard those miscues which do not change the meaning.

Syntactical Structures. Morphemes, combined in certain patterns to communicate certain linguistic meanings, are said to be syntactical structures. They may be phrases, clauses, sentences, or larger units of language. Syntactical structures may also be said to be composed of words belonging to different parts of speech.

Fries (1952: Ch. V, VI) classifies parts of speech according to their function in the sentence, into form classes and function words. A form class consists of all the words which are interchangeable in a construction. For example, since "works" and "sings" can be interchanged in the "The boy works" and "The boy sings," the two words—"works" and "sings"—are said, in this instance, to belong to the same form class. There are four form-classes in English: noun, verb, adjective, and adverb. A noun is a word that can fill the blank in "The \_\_\_\_\_ was lost." It is the classes of words, not the individual words themselves, that function as the structural units of the patterns that make up grammatical signals. It is clues which mark words as belonging to a form-class which signal the form-class. This can be illustrated by substituting a nonsense word "oogle" into sentence frames. In a statement such as "The oogle was lost," the position marks "oogle" as a noun. However, it becomes a verb in "The boy can oogle," an adjective in "The oogle girl is lost,"



and an adverb in "He ran as oogle as he could."

Function words differ from form-class in that one must know the function words as items in order to respond to certain structural signals. That is, they perform different functions and cannot be substituted one for the other, as members of a form-class can. For example, the idea of tentativeness is introduced in subordinate clauses by function words such as "if" or "unless". Yet they signal a different meaning in a sentence and cannot be substituted one for the other. Again, the word "that" cannot substitute for the word "what" in the sentence, "She saw what he had done."

Robertson's (1966: 315-316) comprehensive study of pupils' understanding of connectives showed that children in grade four could not accurately comprehend certain structures signaled by connectives (or function words). Those connectives having multiplicity of meaning and function were found to contribute most to the comprehension difficulty. Fagan (1969) found that embedding transformations, some of which are signaled by function words, were the most difficult for children to comprehend. Difficulties in understanding relationships signaled by function words may influence comprehension scores in the present study.

Fries (1952: 89-98) has sub-divided function words according to their special function. Noun markers are all the words which occur in the same position as the word "the" in the test frame "(The) concert was good." Verb markers are all the words which occur in the same



position as the word "may" in the test frame "The concert (may) be good."

Intensifiers occur before adjectives and adverbs, and signal some

degree or quantity of the quality expressed by the adjective or adverb.

For example, "She is (very) pretty." Conjunctions stand between words

of the same part of speech. For example, "Spot (and) Fido, excited

(and) happy, leaped (and) jumped up (and) down." Other function

words are used as clause markers, phrase markers, or question markers.

From his experience with the language, the child is led to expect a noun following a phrase marker, an adjective or adverb following an intensifier, and a noun following an adjective. Thus in reading he usually produces patterns which adhere to these built-in meaning signals.

In the Goodman Taxonomy, which generally follows Fries' classification, each miscue is categorized according to the grammatical function of the stimulus and response. This facilitates a comparison of the grammatical function of the stimulus and response, and enables the researcher to gain insight into the "intuitive" knowledge of the language which children possess.

Goodman (1967a: 104), in using the Taxonomy, found that the grammatical function of miscue responses in young readers tended to be the same as the grammatical function of the stimuli. She hypothesized that when the children did respond with a grammatical function other than the same as the stimulus, there were often grammatical reasons for it. They may have been confused by words that function in



different manner than they expect them to. For example, if the child is familiar with the word "run" as a verb, he may be confused when he finds it used as a noun. If sentence patterns are more complex or if they differ from those he has learned, he may have problems integrating the graphic cues and the grammatical signals in the language. The present study may give some indication of the degree of proficiency of grade four readers in their comprehension of syntactic units in narrative reading material.

### Systems in Language

Sentences have structure and underneath the great diversity of sentence structures there is system. "Language system involves regularly recurring patterns in sentence structures" (Gleason, 1965: 195). A full description of language must include a description of the three systems of the language: phonology, grammar, and semology. But it also encompasses the relationships which exist between sentences. Note the identical parts of speech, syntactic relationships and structural signals, but the different vocabulary of the following sentences:

John saw a lion.

Mary baked a cake.

This is one of the patterns of relationship between sentences in which each lexical item in one can be substituted for an equivalent lexical item in the other. Meaning derives from this contrast of lexical items in two identical structured frames (Gleason, 1965: 195-197).

Another kind of relationship is exhibited between a second pair





of sentences, in which the meaning is very similar, but structures are different.

The boy rode the horse.

The horse was ridden by the boy.

Here meaning derives from contrasts of structure between sentences with the lexical items held constant in each. Constant checking of one type of sentence relation against the other is a basic technique of language analysis. Certain sentence patterns are considered basic or "kernels." Transformations (negatives, passives, questions) of the basic constructions introduce the many variations of expression possible in a language.

A sentence has pronunciation, a grammatical structure, and a "meaning." It has three structures simultaneously, each functioning as a unit. A description of these three interdependent and interrelated systems of language follows.

Phonology. Phonology has to do with the sound features we use when we speak -- consonants, vowels, stress, and intonation. The phoneme is the basic unit of this system.

Grammar. Grammar is the language system concerned with morphemes and syntactical structures, and the relationships which exist between such items. It controls the way we put words together into sentences. Grammar includes (a) morphology -- the study of word structure, and (b) syntax -- the study of the relationships which exist



among words, phrases, clauses, and sentences.

Semology. The third system of language, semology, is characterized by meaning contrasts and patterns of sense organization. The singular-plural distinction as in boy-boys is an example of meaning contrast. Gleason (1965: 295) explains how patterns of sense organization distinguish between meanings in superficially similar items. While "sleeping dog" and "sleeping car" on the surface appear to have the same structure, a native speaker of the language senses the underlying difference. The two constructions are not generated by the same transformational rules. "Sleeping dog" evolves from "The dog sleeps," while "sleeping car" is probably produced from a sentence such as "The car is for sleeping." Stress, pitch and juncture (classified by Gleason as supra-segmentals, a part of the sound system) contribute to this language sense. For the native speaker, to whom the stress and intonation are signals to the language of these phrases, transfer can occur from the spoken to the written language when such structures are met in reading material.

### Meaning Cues

"Learning a language code is learning the signals by which meanings or messages are sent and received" (Fries, 1964: 103). Language in and of itself has no meaning. It is a code, a system by which those who know the code may communicate meaning. Children must understand the structure of a sentence in order to grasp its meaning. They must learn those cues inherent in the language which



signal meaning.

The major recurring meaning – signalling devices in the English language are the parts of speech, word order, function words, derivational contrast, inflections, and prosodic patterns (Gleason, 1965: 168). These are present in abundance in most sentences, supplementing and reinforcing each other. Redundancy of signals is a necessary quality of language.

The child who is learning to read needs this duplication and reinforcement, but as his proficiency increases, he tends to select only those signals which are essential for his understanding. Certain words may be omitted without changing the meaning of the passage. However, children who habitually omit function words in their reading may be losing the connectives which signal relationships, thus limiting the comprehension of what they read.

One of the important signals of meaning available to a child is intonation. Lefevre (1968: 297; 1967: 299) believes that intonation precedes the development of the phonemic repertoire and formation of vocabulary in language learning, and that sentences and sentence-like structures are delineated and shaped by basic patterns of native English melodies and rhythms. He suggests that we take advantage of the child's knowledge of language structures, as shaped by intonation, in two ways — by the use of context in reading, and by oral reading with children beginning to read. He agrees with Goodman (1967b: 291) that written



words taken out of context cannot be defined, pronounced, or categorized. For example, the use of stress difference distinguishes "set up" and "set up'", or "contract'" and "con'tract." But these differences can only become evident within the context of a sentence. The practice of oral reading allows the child to use his knowledge of intonation to help him group and order words into meaning-bearing patterns. Lefevre (1967: 295) postulates that in silent reading "the echo of the sound of speech" is still present to give meaning to the words on the printed page. It is this mental sound track which cues a reader that the patterns he is reading do not "sound right," and he regresses to re-read. However, at grade four level, the semantic screen: "Does it make sense?" may be more important than the syntactic screen: "Does it sound right?" in prompting regressions to correct. Goodman (1967a: 270) found that good readers more often correct miscues which make a difference in meaning than do poor readers, and suggested that children be allowed to work out their own strategy.

### Summary

The child is able to comprehend linguistic meanings due to contrasting patterns in sound, syntax, and meaning, which work together through spoken or written language. He unconsciously internalizes meaning cues (e.g. position, inflections, function words, and intonation patterns) and meanings of the remaining words he hears, and by school age demonstrates a remarkable facility in producing





grammatically correct sentences. Children in the present study may show how they use their knowledge of meaning cues and vocabulary as they attempt to decode meaning from the graphic symbols on the printed page. They may also demonstrate their use of corrections as a meaning-getting strategy. In addition, the levels of language at which they are producing miscues, and the per cent of miscues which do not change syntax or meaning, can be determined. This information may be useful in establishing norms for reading development.

## II. THE DEVELOPMENT OF LANGUAGE AND THOUGHT IN THE CHILD

This section will outline selected research on the acquisition and development of language, and on the role of language in thinking.

### The Acquisition and Development of Language

Perhaps the most outstanding aspect of human behavior . . . is the young child's ability to acquire in a short time, and with with no special tuition, complete mastery of an immensely complex apparatus for constructing and understanding grammatical sentences (Lees, 1960: XVI).

Research in language learning is significant in the field of reading because the principles of language learning may apply to reading as well, and the research methods used may be applicable to research in reading.

The psycholinguists' problem is to characterize the child's language in its various developmental stages. Most of the studies



have been observational and longitudinal. A small sample of children are visited at regular intervals during their period of rapid linguistic growth. Tape recordings of their daily speech activities are taken and the psycholinguist writes and tests a grammar (set of rules) that might account for the child's talk.

Several studies (Brown and Fraser, 1964; Menyuk 1961; Berko, 1958) have shown that children acquire basic structural patterns of language in a very short time, and in a developmental sequence which correlates highly with chronological age. Brown and Fraser hypothesize that the child's "telegraphic sentence" is a systematic reduction of adult speech. The preservation of the order of words in a sentence suggests to them the internalization of total structures rather than just lists of words. Ervin (1964) postulates that the development of language in young children may involve at least three processes: first, the continual expansion in the comprehension of adult speech; second, imitation; and third, building by analogy of classes and rules. However, only the third process can account for the fact that the child learns to produce sentences he has never heard of before.

While the child has a remarkable facility with language before he comes to school, he is still learning to use language. Children in the present study, who have not reached an adult level of language usage and understanding, have no alternative but to read material written by adults. Unfamiliar terminology and phrases, more complex sentence



patterns, as well as the more formal expression which is used in written language, may present difficulties in comprehension as they read. There are differences involved between understanding oral and written language other than just a difference of mechanism. The next section will discuss these differences further.

How young children develop in their use of language has been inferred from data gathered in psycholinguistic studies and observation. Cazden (1968), Miller and Ervin (1964) and Leopold (1966) in three separate longitudinal studies of the acquisition of noun and verb inflections in young children, agreed on a similar pattern of observed development. For example, in the first stage no contrasts were made between past and present tense verbs. Then particular instances of contrast were noticed, followed by a generalization of the regular past tense ending. Finally, a differentiation of irregular forms was made (e.g. the child now said "ran," not "runned"). The age for generalizations to occur varied according to individual differences, but the pattern of developmental steps was identical in each case. We can conclude then that the child utilizes linguistic data to abstract rules and regularities, which in turn guide his language production. Recent researchers in reading are asking whether a study of the step-by-step development of the reading process by an individual might yield new knowledge of what reading is and how it is learned. The present research is concentrated upon the reading of a group of



pupils at a certain point in time. It is hoped that along with studies at other developmental levels of reading proficiency, it may contribute to what is known about the reading process.

Language development, in relation to such factors as chronological age, sex, and mental ability, has been investigated in several studies. LaBrant (1933: 387-491), Watts (1944: 123) and Loban (1963) agree that the use of subordinate structures by children in the middle grades increases from year to year. Contrary to LaBrant's findings, the research of Watts and Loban revealed that mental age was a significant factor in the use of dependent clauses.

Spache (1968: 279) summarized research on variables influencing reading achievement. The general superiority of girls over boys was interpreted as reflecting environmental influences (girls tended to greater social conformity and overachievement).

Robertson (1966) found that sex, mental age, listening ability, reading ability, and ability in written language were important variables contributing to pupils' understanding of connectives in reading. Girls were found to be superior to boys in language development at grades four and five. On the other hand, evidence from the work of O'Donnell, Griffen, and Norris (1967), Loban (1963), and Hunt (1965) suggests that boys may excel girls in their complexity of language structure. Loban cites the child's ability to achieve flexibility within sentence patterns as a measure of his proficiency with language.





However, O'Donnell et al., in agreement with Robertson, found an apparent developmental lag in the language of grade five boys. (His sample did not include grade four.)

Rawson (1969) suggested that boys in her sample of grade four pupils were progressing in advance of girls in the "thinking" part of reading (logical operations), while girls were operating on a level of language without adequate understanding of basic logical principles.

Goodman (1966) stresses the importance of the semantic information (system of meanings) used in reading, which comes from the child himself. A message can only be decoded for meaning by the child who not only is able to use the language, but who has sufficient background to understand the message once it is decoded. It may be that boys have a better background of experience or "semantic base" for reading comprehension.

Robertson (1968: 96), in discussing the importance of perceptual development for beginning readers, states that "perceptual development is basic to abstract thinking." Differences in expectations for the sexes in our culture may allow the boys more opportunity to develop concepts through a diversity of experience. Perhaps girls resort to verbalism to compensate for their less precise concepts. Thus boys may have the advantage over girls in abstract thinking, or reasoning in reading.

The Taxonomy used in the current study may prove to be a



sufficiently sensitive instrument by which to infer differences in levels of language and thought of the sexes.

The factors of sex, reading achievement and I.Q. in relation to reading miscues and comprehension are being investigated in the current study. Previous research (Robinson, 1963; Weintraub, 1966) has indicated a significant relationship between reading achievement and factors of sex and intelligence. While oral and silent reading are separate processes, their underlying similarity far outweighs differences in mechanics. It may be, then, that the factors of sex and intelligence are related to oral reading errors as well.

### The Role of Language in Thinking

Reading is concerned with both language and thinking. The relationship between language and thought is therefore of significance to the reading process. Vygotsky (1966) sees language and thought developing together, but grammar precedes thought. He believes that we direct our behavior by inner speech, which is thought connected with word.

Regarding the nature of words, he says:

The meaning of a word represents such a close unity of thinking and speech that it is not possible to say whether it is a phenomenon of speech or a phenomenon of thinking (p. 510-511).

Lefevre (1968: 294) summed up the relationship of language and thought in these words:



Whatever the precise relationships may be, and whatever the mechanism or process of the relationship may be, human thought and linguistic patterns appear to be so closely interrelated as to be inextricable, the one from the other.

Although language is not thinking, it is a symbolic medium for facilitating, expressing, or communicating thought.

Through language, the child is freed from the necessity of tangibly interacting with his immediate environment for purposes of learning and communicating. The language gives the child structures in which to fit words which differentiate past, present, and future. However, there is no guarantee that because the child uses the word "to-morrow," he understands its meaning. Piaget (1962) and Vygotsky agree that the child acquires the meaningfully structured language before he grasps its meaning. Not until thought operations (in speaking and reading) are tied to experience does the child fully comprehend what he is saying or reading. Piaget stresses the importance of providing suitable learning experiences to match the child's cognitive development. Rawson (1969) demonstrated that thinking on a concrete level precedes thinking with language. Children who were able to conserve when presented with concrete materials were unable to comprehend the solution when the same problem was presented verbally in story form. Rawson emphasized the unique function performed by reading in developing abstract intelligence.

The importance of the development of formal language structures



to the acquisition of logical thought processes is emphasized by Bernstein (1961: 307). He found in his study of the working classes, that the type of language structures acquired conditioned what and how a child learned, and set limits for future learning.

In similar vein, Bereiter and Engelmann (1966), working with disadvantaged preschool children, questioned whether the lack of concrete experiences was a crucial factor in academic aptitude. Rather, they suggested, the crucial factor was the severe restriction, especially between children and adults, of the cognitive use of language (to explain, describe, instruct, inquire, hypothesize, analyze, compare, or deduce). They attempted to use linguistic pattern drills and expansion of sentences, placing special stress on the understanding of structure words which supply logic in language patterns. The purpose was to provide a linguistic framework to serve as a bridge to abstract thinking. The extent to which children are able to use the language as a tool for thinking may be demonstrated in the present study.

The use of language mediation to facilitate thinking has been investigated by Gagne and Smith (1965). They found that subjects involved in problem-solving, who were required to verbalize as they worked, achieved significantly higher scores than those who were required not to verbalize. The researchers concluded that requiring subjects to verbalize during practice has the effect of making them think of new reasons for their moves, and thus facilitates both the





discovery of general principles and their employment in solving successive problems.

Haslerud and Meyers (1958) found an experimental treatment in which verbally stated principles of solution of cryptograms were given to subjects, to be less effective for solution of new cryptograms than was a treatment in which subjects were required to discover solutions for themselves. It appears that verbalization by the person involved in the task of solving the problem is an aid in reaching a solution, but the stating of verbal principles by someone else may interfere with the problem solving task.

If learning to read may be considered a series of tasks which require search techniques, then perhaps children who are free to work out their own strategies without undue teacher interference, may develop not only meaning-getting techniques, but a "set" for learning as well, which will transfer to other learning situations.

### Summary

Children acquire basic structural patterns of language in a very short time, and in a developmental sequence which correlates highly with chronological age. The acquisition of language by the infant and his development during infancy and childhood are of great importance to the problem of releasing him to greater learning. Failure to become skilful in communication immeasurably handicaps a child's general intelligence and cognitive development. The role



of language in thinking depends not only upon the kinds of language structures which the child hears, and learns to use; it depends on the involvement of the child in meaningful experiences tied to the language. Betts (1960: 147) reminds us that "in the final analysis, the materials of reading are concepts rather than words."

### III. DIFFERENCES BETWEEN ORAL AND WRITTEN LANGUAGE

Some of the problems which confront children as they read are due to differences between the language on the printed page and the language which children themselves use. There is, first of all, within the child a gap between his own oral and written language. A further gap exists between the child's formal and informal oral or written language. Furthermore, there is a gap between the child's language (oral and written) and the written language which the author uses, whether formal or informal. This section will discuss these differences and their effect upon children's understanding of what they read.

#### Differences Between Child's Oral and Written Language

According to O'Donnell, Griffin and Norris (1967) a shift in emphasis occurs from listening and speaking in the primary grades to reading and writing in the intermediate grades, four to six. Because of the amount of the child's listening experience compared with his reading experience, the child in grade four is likely to be more proficient in speaking than in writing. As well, he is likely to grasp the meaning



of a story read to him better than he grasps the meaning of the same story which he reads himself. Problems in reading comprehension at grade four may be due to this sudden shift, particularly as reading material increases in quantity and becomes increasingly difficult, and problems with word recognition, sentence structure, and intonation patterns lead to loss of meaning. Perhaps a more gradual change from the oral to the written mode of language might be desirable. The child may need to be better prepared for complex and varied vocabulary and sentence patterns before he meets them in his reading.

Language loses certain features in its translation into the written form. Missing in written language are the several aspects of prosody, the usual paralinguistic cues, and the natural community of interest that sustains a conversation. In discussing the relationships in reading and language, Carroll (1966: 577) states that while the oral language code is functional and meaningful to the child, reading is not always understood to be a means of communication. However, reading can become more vital and functional once the child learns to approach the printed page expecting to find meaning. Interesting materials related to the child's experience are important in early reading to develop this "set" for meaning. Some children become proficient in word-calling, and may even read orally with fluency, while understanding very little of what they read. This problem may show up in the present study.

Strickland (1962) suggested that the difference between the formal language of print and the oral language patterns of elementary



school children was a hindrance to reading comprehension.

Ruddell (1965) demonstrated that this was so when he found a relationship between similarity of oral and written language patterns and reading comprehension. Six reading passages were written for the study; three utilized patterns of high frequency as they occurred in the children's oral language, three utilized patterns of low frequency. (The frequency values were based on data collected in a study by Strickland.) The passages were equated in difficulty by controlling the variables of vocabulary difficulty and sentence length, using the Dale-Chall readability formula. Subject matter content was limited to specific topics in science, cloze comprehension tests were constructed for each of the reading passages, and administered to grade four children. From the results of these tests Ruddell concluded firstly, that reading comprehension is a function of the similarity of patterns of language structure in the reading material to oral patterns of language structure used by children; and secondly, that reading comprehension scores on materials that utilize high frequency patterns of oral language structure are significantly greater than reading comprehension scores on materials that utilize low frequency patterns of oral language structure.

While it is necessary for children to become accustomed to more advanced styles of writing, a gradual transition from the familiar and simple to the more complex language structures should be provided.





For example, in both speaking and writing, the child in primary grades will often string his ideas together in linear fashion, using "and" as a connective in place of a subordinator to indicate relationships in the sentence. When he reads, he may disregard subordinate relationships in the reading material by changing the syntax and the intonation pattern. A sentence such as "When she started down the rickety ladder again, her feet slipped," may be modified to suit the child's language and cognitive development: "Then she started down the rickety ladder again. Her feet slipped." The child who consistently changes subordinate relationships when he reads needs to hear more advanced language patterns introduced gradually, and related to meaning (e.g. acting out time sequences such as "After the game, the boys went home" or "The pianist bowed as the audience applauded."). When the child understands and can use these patterns in oral language, he should then experience the same patterns in his reading. In this way, he can be taught gradually to incorporate increasingly complex and varied vocabulary and sentence structure, leading to the acquisition by the child of the ability to independently translate varying styles of formal writing successfully. Particular attention should be given to those areas in which the written language is in some way different or an incomplete representation of the oral language.

Loss of comprehension can result when children disregard punctuation which is a partial clue to the reader to supply



appropriate intonation patterns as he read aloud. But the reader must supply some of the cues from within himself as he senses how the language should sound. Davison (1968: 134) and Fagan (1969) both found that children in the middle grades frequently failed to utilize punctuation cues to meaning in their reading. Children in the present study who ignore punctuation and other typographical signals may need special help in paying attention to these cues to meaning. Lefevre (1968: 304) suggests that primary grade reading programs should be designed to encompass a study of suprasegmental elements in facilitating maximum transfer from the child's already well-developed spoken language to written language, thus enhancing his comprehension of the latter. It may be that at grade four the need still exists for such teaching.

Other problems in children's reading may arise from the fact that the writing system employs different spellings for phonemic equivalents or "homophones" (e.g. "too," "to," and "two"), and the same spellings (homographs) for words phonemically different (e.g. "read" pronounced as /riyd/ or /red/). There may be evidence of these problems in the current study.

The difference between the perceptual units of oral language and the perceptual units of written language is another concern in children's comprehension of written material. Traditionally, either the letter or the word has been considered the unit of written language



from which learning to read must begin. With recent emphasis upon using what the child knows of his oral language in teaching him to read, the auditory and visual perceptual units of language have become subjects for research. Miller (1965: 333) believes that in ordinary conversation the functional unit of speech perception is usually larger than a single word or a single morpheme, and more nearly the size and shape of a syntactic constituent. He adds that reading comprehension should be facilitated when written language is perceived in units as close as possible to the units of speech.

In an effort to discover what the smallest graphic units consistently coded into phonemic patterns are, Gibson, Osser, and Pick (1963) conducted several experiments. They concluded that spelling patterns which have invariant relations to sound patterns function as a unit, thus facilitating the decoding process, and that the size and complexity of the spelling patterns which can be perceived as units increase with development of reading skill. The child must learn to work out his own strategy, utilizing the constraints in letter and word sequences.

Weir and Venezky (1968: 188) tried to identify common sound patterns in English by analyzing twenty thousand different sounds and sound combinations. It may be that common sound patterns in speech, and common letter patterns in written language, are predictable from the child's past experience with these patterns. Just as certain patterns



of words in a sentence may be predicted, so may patterns of sounds or letters which represent the sounds. The child who has learned to predict letter sequences in his reading will be able to deal with increasingly larger perceptual units.

Jones (1968: 41-57) posits that perceptual units in reading may be words, phrases, clauses, simple or complex sentences, depending upon the individual and the context. The larger the unit, the more efficient the coding of information, and the better the reader. In the current study, the levels of language on which reading miscues are made may prove to be a measure of reading proficiency.

In a study undertaken to determine where natural pauses in speech occur, Jones and Carterette (1968: 105-165) used recordings of natural speech and reading of six-year olds, adults, and children in the third and fifth grades. Phoneticians indicated breaks in the sound stream where they heard a definite pause. The result was that very few lexical words occurred as discrete units. The phrase and the clause were the most obvious encoding units at all levels. The researchers suggest that the child beginning to read needs added help in bridging the gap between his spoken language and his visual language skills (e.g. underlining words to be read as a unit, and indicating the position of primary stress in a sentence). It appears that further research like that of Carterette and Jones is needed to determine what the perceptual units in speech and in written language may be at different ages or levels of





proficiency. Ways to compensate for difference between the two language modes may then be found.

### Differences Between Child's and Author's Language

Differences between formal and informal language, whether oral or written, can present comprehension difficulties also. Young children use speech informally and as they listen to descriptions, explanations, discussions etc. of adults or as they hear stories read to them, they gradually begin to understand a more formal type of language and to adopt it in certain structured situations (e.g. in telling a story). However, for the child without rich language experiences, the vocabulary and sentence structures used in his reading material may seem to him almost like a foreign language. Even when a child has a good command of oral language, much of the material written for him by adults, particularly that in most text-books, is formal from the child's point of view.

Word order in formal writing differs considerably from that of speech. The result is often a major restructuring of sentence patterns. The child who would ordinarily say: "They were watching for Indians but they didn't see any" must read: "Although they had been watching for Indians, none had yet been seen" (Keating: 280).

Noun adjunct constructions such as "table top" instead of the simpler "top of the table" can also be confusing to the child in grade four.



Deletion transformations can contribute to comprehension difficulty, e.g. "He came back but (he did) not (come back) to the same house." Fagan (1969) found that embedding and deletion transformations were the most difficult for middle-grade children to understand. Loban (1963) found that adjective clauses were used less by elementary school children than were adverb and noun clauses; Watts (1944: 123) found the adjective clause a rarity in the writing of grade four children under the age of eleven. It may be that adjectives or adjective clauses are a source of difficulty in reading.

Davis (1944) investigated the frequency of occurrence of relative pronouns in children's writing. The relative pronoun "that" occurred more frequently than "who," "which," or "what." Perhaps children experience difficulty in reading material in which these more precise terms appear frequently.

Formal language places value upon long sentences for avoidance of monotony in both sentence length and grammatical constructions. The skilful management of the long sentence is a complicated task requiring the proper emphasis of the major elements and the due subordination of what is less important. Note the following introductory sentence from a narrative reading selection in a grade four book:

In the high West Virginia mountains where the Eel River dashes down toward what mountain folk call the "Levels" is the lumber camp of Tony Beaver, (Carmer, 1964: 40)



Jenkinson (1966: 182) lists post-positional noun modifiers, greater variety of tense-forms, greater variety of adjectival phrases, greater variety of subordinate clauses, and phrases in apposition as syntactically complex elements which occur with greater frequency in written language than in oral language. These elements are likely to present comprehension difficulty unless special instruction in their use and meaning is provided.

The reading material used in the current study was written by an adult for children. Certain words and structures may not be familiar to the children who read it. Close analysis of their oral reading errors, using the Goodman Taxonomy, may bring to light those words and language structures which caused difficulty, as well as certain problems specific to the printed page.

#### IV. THE READING PROCESS

Research on the total process of reading represents a wide range of insights. Reading experts, after years of work in the field of reading, have looked at the skills and abilities of a good reader, and have tried to prescribe instruction to achieve this desired "end product." Others, from the fields of psychology and linguistics, have looked at reading from their own particular viewpoint, and placed emphases in certain areas of the reading process most closely related to their own discipline. In recent years, psycholinguistics has asserted itself as a



new field of knowledge and research, concerned with the relationships and interaction between language and thought. In this connection, reading has become an area for investigation, with emphasis upon intellectual process, reading behavior, and procedures for instruction. The rationale underlying this research is that the knowledge of what reading is and how it is learned can provide a basis for an instructional program. Selected research related to these two aspects of the reading process will be presented in this section.

### What Reading Is

For Carroll (1964: 336-337) reading is the perception and comprehension of the written messages in the manner paralleling that of the corresponding spoken messages. The activity of reading can be analyzed according to two processes, recoding the written message into the construction of a spoken message or some internalization of it; and decoding, or the comprehension of the messages so constructed. Anything beyond these processes Carroll would consider to belong to the realm of thinking. This is not to say that thinking does not take place during the recoding and decoding of the message. However, Carroll implies that beyond the recognition of words the comprehension task is synonymous for written and oral language. Jenkinson (1966: 180-187) takes issue with Carroll's simplex view of reading. She points out differences in language structure between the two language modes which can cause problems in comprehension of reading material,





and she suggests that intellectual processes required for complex structures common in written language may be quite different from those involved in oral language.

Perhaps Carroll's description of what reading is may be more applicable at the beginning stages of reading. Certainly as the child advances to the middle grades and on to high school, his comprehension of diverse and complex styles of writing in the various fields of knowledge will depend upon a recognition of the differences between oral and written language, and a concerted effort to compensate for these differences.

Clymer (1968: 14) outlines Strang's model of reading, which takes account of prerequisites for learning to read. Strang distinguishes between (a) products (the skills and abilities used in reading); (b) prerequisites (the traits and experiences necessary for successful reading); (c) the reading process (the chemistry, physiology, and psychology of the reading process); (d) procedures (the techniques and conditions of instruction). Clymer also presents and discusses Barrett's model of reading comprehension, which is divided into five major skill categories or levels: (a) literal comprehension; (b) reorganization; (c) inferential comprehension; (d) evaluation, and (e) appreciation. Barrett emphasizes the skills and abilities used in reading, and his examples give some guidance for instructional procedures. While his model may be useful as a basis for developing questions for guiding children's reading, the idea that each



child's thinking occurs on levels approximating those of the taxonomy is without support in research. Furthermore, as Clymer points out, the model cannot take into account the individual differences of children in their background of experience. It therefore lacks "the reading process" and "prerequisites" of the Strang model. It is not clear whether Barrett's model can be used at the beginning stages of reading, but his conception of comprehension does not seem to include such areas as phonic generalizations. In this connection, Johnson (1965; 70-76) contends that the word perception and recognition process of reading is not merely a mechanical one, separated from the comprehending or thinking side of the total reading act. Thinking — abstraction, generalization, etc. — is very much a part of the perception and recognition of words and the acquisition of word-analysis skills.

Goodman (1966: 195) describes the process of comprehending in the proficient reader as follows:

The reader perceives print as large language units. He selects minimal grapho-phonetic, syntactic, and semantic cues and makes tentative choices on the basis of these minimal cues. He continually tests his choices by attempting to decode an acceptable meaning; he goes back to gather more information as it is needed. In this process he utilizes all of his relevant past experiences, learning and language development.

This explanation of reading comprehension emphasizes the reading process; it is interested in answering the question: "What happens when a child reads?" Goodman sees reading as information processing, in which meaning is decoded from a linguistic medium of communication.



"Encoding" means going from the written code to the oral code; "decoding" implies the comprehension of the message. Decoding of the message occurs through the interaction of language and thought. When he reads, the child draws on his experiences and the concepts he has attained as well as the language competence he has achieved.

Goodman tries to show the relationship between language and thought as demonstrated in oral reading. However, it is not known whether the central processes used in silent and oral reading are the same. Inasmuch as they are similar, the inferences made from oral reading about thinking may be tenable for silent reading as well.

Goodman (1968: 16-20) shows how oral and silent reading differ as he describes the stages of reading proficiency through which the mature reader has proceeded.

In the earliest stages of reading, the graphic input, whether letters, letter patterns, or word shapes, is recoded into aural input which is eventually decoded for meaning. It is possible at this stage to pronounce the words represented by the graphic sequences, without gaining meaning. However, if the recoding is a reasonable approximation of oral language, it becomes possible to decode from it in the same way one would decode aural language input in listening.

According to Goodman, the second stage of proficiency is achieved when the child's aural input occurs simultaneously with his recoding of the graphic input. In order to do this, he must perceive letters and words



always as parts of larger language units, and equate large graphic units with oral phrases, sentences, and sentence sequences. Nothing less than decoding of large language units is reading. At this stage the recoded graphic input must be supplemented, principally with the intonational aspects of speech, and oral and silent reading are probably quite comparable as processes.

At the third stage of proficiency, the recoding and decoding become simultaneous, with the reader decoding meaning directly from graphic input. Reading now becomes a rapid series of guesses, tentative information processing. The less available information the reader uses, the more rapid and efficient is his reading.

At this stage, oral reading has become quite a different process. Goodman states that the process of decoding directly from graphic input has become so habitual that the child must first decode and then encode meaning as oral output. This often results in considerable change from the original graphic input to oral output. To produce completely accurate oral reading, the child must be able to change his normal pace and his mode of information processing to encode orally at the same time he is decoding.

Goodman speaks of readers whose reading sounds as if they understand, but they are in fact only efficient recoders. Prerequisites for this type of reading he believes are: recognition by the child of words and sequences of words by sight, and knowledge of syntactic units of language. These are skills possessed or learned by automatic processes





by a child with good memory ability and high visual and auditory skills. The child does not realize that reading is communication; his purpose in reading is to say the words, not grasp the ideas. This type of reading serves to underline the importance of the child's acquisition of a "set for meaning."

It may be that girls, who are generally more proficient in auditory and language skills than are boys, and who may be concerned with conforming and pleasing the teacher, will be more numerous than boys among these efficient recoders or "surface" readers.

In the current study, certain children reading orally may exhibit difficulty in coordinating the voice with the faster moving eye. Others may be highly efficient recoders, with little or no awareness of the need for decoding for meaning.

Goodman's model of reading has the advantage of directing attention to each child as an individual. It implies that the child learns strategies based upon his own learning style and background of experience, and that the strategies he learns as he deals with the language on the printed page will transfer and be relevant through all phases of reading. Instructional procedures would therefore include securing in the child a "set for meaning," the teaching of cues needed in encoding and decoding, and permitting the child to read.

According to Goodman, the purpose of reading is to reconstruct the message. Therefore, meaning must be included in any discussion



of what reading is. However, reading and thinking are not synonymous; skills and abilities often referred to as "thinking skills" are missing from Goodman's model. Goodman conceives of thought which is beyond what the reader has comprehended of the author's meaning to be not "reading," but rather "the results of reading." Those who conceive of reading as having broader aims than "the reconstruction of the message" are concerned that such skills as evaluation and appreciation have no place in Goodman's reading model. However, it is not clear what a "reconstructed message" is like, nor is it clear where the boundary between reading and thinking lies. For example, can a message from a poem be reconstructed according to Goodman's model? A complex poem, to be "decoded" requires the comprehension of literal, implied, and figurative meanings (the selection of grapho-phonemic syntactic, and semantic cues); sensitivity to ideas, emotions and moods (past experiences, both cognitive and affective); an appreciation of the sound and rhythm of the language (past experience with language); and a willingness to become "immersed" in the thought and feeling of the poem (a "set" for meaning). Strategies for comprehending the message of poetry develop from past experiences with similar materials, with assistance given at points of difficulty as they arise (e.g. figurative language, upset word order, symbolism). Appreciation and evaluation may well follow as a result rather than as a part of the reading process, and are best demonstrated when the student does or does not seek out more



poetry of the same kind or by the same author.

Goodman's insistence upon reading for meaning at all phases of reading necessitates the use of words in context from the very beginning of reading instruction. In a study conducted in 1965, he found that children will pronounce more words correctly in context than in list because of additional clues in text. First-grade readers were able to read two out of three words in a story which they had been unable to name on a word list. Second-graders could read three out of four such words, while third-graders could get better than four out of five. He therefore concluded that words should almost never be taught or learned in isolation. Full use should be made of all the meaning clues which exist in the context of language. This implies presentation of material in its full context. However, the visual aspects of presenting only large sequences of written language to children beginning to read may be questioned. Goodman does not say how beginning reading should proceed when this theory is carried to its logical conclusion.

Recent research has shown the importance of learning graphic-phonemic correspondences as early as possible, Chall (1967: 305-14) recommended an increase in "code-emphasis" for beginning readers. In a developmental study Biemiller (1969) examined reading errors of grade one children in terms of approximation to graphic information and



contextual information. He delineated three stages: (1) Pre-No Response (when context was used extensively); (2) No Response (which Biemiller interpreted as a period for the internalizing of the invariant correspondence between spelling patterns and phoneme patterns); (3) Post-Non Response (when there was a shift to the use of both contextual and graphic information). The earlier a child moved into the No Response stage, the better reader he was at the end of grade one. The percentage of graphic substitutions increased with ability groups. Biemiller concluded that mastery of the use of graphic information is the first priority in learning to read, and he suggested that the use of context should be discouraged in order to compel the child to use graphic information as much as possible. This directly contradicts Goodman's contention that the child must get sense from reading from the beginning.

Weber (1968) discusses Elder's 1966 study in which he analyzed oral reading performance to determine the effect of the earlier and more analytic training that Scottish children receive in contrast to that which many American children receive. With a sample of third-grade children, he found that Scottish children made fewer reading errors, but the American children used context more successfully. However, neither this study nor Biemiller's have been designed to take into consideration the child's own mode of learning.

Further long-term research is need to discover at what stage certain skills or strategies should be emphasized, and the long-range effects of such emphasis.





Studies of individual children as they learn to read may reveal that emphasis upon "code-breaking" is desirable with some children but not with others. McCullough (1968: 322-323) points out the necessity for a balanced reading program. She states that balance may mean something different at different levels of proficiency. But since balance must of necessity be related to individual need, it may also mean something different for every child. Reading models such as Goodman's, which emphasize strategy, have the beneficial result of channelling thought toward the individual.

### How is Reading Learned

Goodman thinks of learning to read not so much as a learning of specific skills (although these should accompany) as the learning of a strategy. Teaching becomes more a matter of insight, intuition, and flexibility, with methods based on a firm knowledge of linguistics and psychology. Such phrases as "set for meaning," "set for diversity" and "transfer of learning" come to the fore in this context.

Bruner (1964: 299) found that the acquisition of coding systems depended upon set or attitude, the need state (medium was best), the degree of mastery (mastery of specifics of a situation was necessary to discover regularities), and diversity of training. This would suggest that a child who is alert to meaning in reading and who is motivated to discover things, would work out his own learning strategy as he is presented with sequentially ordered materials, and that this strategy would transfer to other tasks.



Gibson (1965: 1066) speaks of three phases of learning in the progression from spoken language to written language. First, the child must learn to differentiate graphic symbols. Second, he must learn to decode letters to sounds. Third, he must learn to decode progressively lower and higher-order units of structure. Gibson and her associates have conducted several studies in an effort to discover how these skills are learned.

Johnson (1965: 70-76) lists three steps in the child's acquisition of word-form analysis techniques. First, the child accumulates experience with the perception of word forms which are similar in significant aspects. Then he abstracts the significant elements, the similarities among them and recognizes their implications in terms of oral language and meaning. Finally, by the process of generalization, he arrives at principles which can guide him in his analysis of unknown word forms. Johnson suggests that word perception and recognition, and word analysis skills should be taught as thinking skills, facilitating understanding instead of verbalism. The child who finds things out for himself has the kind of knowledge which will transfer to new situations. As McCullough (1968: 331) points out, the task of the teacher becomes, increasingly, to teach children how to learn, and to give them the responsibility in applying the method in further learning.

Gibson, (1965: 1070) cites a series of experiments by Levin, which test the effect on transfer of learning variables as opposed to



constant letter-sound relationships. The results suggest that a "set for diversity" may facilitate transfer of learning to new letter sound correspondences which are "unpredictable."

Carroll (1964: 341) also emphasizes the need in the young reader for a "set for diversity." When the beginning reader meets a word with which he is not familiar, that is, one he cannot recognize instantly, the process of word recognition may be regarded as a case of problem-solving. Various cues are available to him. Sometimes they will very quickly allow him to arrive at a proper reconstruction of a word; at other times, the cues may suggest a series of possibilities. Carroll says that in this case, the learner must go into a "search-routine," testing out each one of the possibilities until a satisfactory one is found.

Goodman agrees with Carroll that reading is a sampling and predicting activity. The reader can screen possibilities and anticipate elements in language sequences, whether they are phonemes, morphemes, words, or phrases. For Goodman, (1968: 22) learning to read proceeds by the reader's response to cue systems. The systems of cues in the written language itself are cue systems within words and cue systems in the flow of language. There is also a set of cue systems within the reader which he supplies as he reads. These include the recoding strategies he uses, his past language experience (knowledge of the structure, intonation, and vocabulary of the language) and his general experiential and conceptual background. Another set of cues (pictures, facial



expressions of the teacher or classmates) are external to language and the reader. Goodman believes that these external cues can interfere with the communication process of reading. The reading circle where each child reads aloud and is prompted by teacher or classmates at each miscue or sign of hesitation, would, according to Goodman, interfere with the development of learning strategies. Biemiller has suggested that the pause or "non-response" in the beginning reader may be made for the purpose of mastering the structural constraints of written English. In much the same vein, Miller (1965: 333) proposes that pauses may serve a psychological function in providing time for decisions. It may be that children who are given help before they have exhausted all those cues already available to them are being deprived of opportunities for decision-making and prevented from developing their own methods of figuring things out.

Whether children use repetitions as a meaning-getting technique was investigated by Goodman (1965). He discovered that almost all repetitions by children in grades one through three were made in order to correct an error such as substitution. In her study of beginning readers, Goodman (1967a: 202) concluded that comprehension increased as the per cent of corrections increased, particularly in the case of the better readers. This may suggest that the more proficient the reader, the more able he is to make "better" corrections, that is, corrections which make a difference in meaning.





The current study, which is concerned with corrections made by grade four children as they read, may either confirm or contradict this suggestion. Since there will be no prompting or aid given, the children will be forced to use only those cues available on the printed page and within themselves. However, comprehension and recall may be a more difficult task in oral reading than in silent reading. These children may already be so proficient in silent reading that being obliged to read orally may interfere with their usual method of decoding for meaning.

### Summary

Although there are differences of emphases in the reading models selected for discussion, the ultimate goal for each one is the child's understanding of what he reads. While there continues to be disagreement as to what reading is, and how it should be taught or learned, the psycholinguistic knowledge and methods of research being applied in long-term developmental studies promise new insights into these questions and others.

## V. ORAL READING ERRORS

For many years, researchers have realized that errors children make in their oral reading are clues to their reading development. Some (Monroe, 1928; McCullough, et al., 1946) have been concerned primarily with evaluating reading skill and diagnosing weaknesses to provide a



starting-point for remedial instruction. Others (Schale, 1964; Christenson, 1966) have contributed studies which attempt to relate types and frequency of errors to variables such as intelligence, sex differences, chronological age, comprehension level, and difficulty level of material. In general, these researchers looked upon errors in oral reading as a sign of imperfect learning, and were interested in establishing norms. Errors were rarely considered as benign or indicative of an over-used strategy.

Another group of investigators (Goodman and Goodman, 1965; Weber, 1968; Biemiller, 1969) have recently attempted an analysis of oral reading errors, based upon the principles of psycholinguistics. The method utilizes a highly detailed taxonomy, and places the emphasis upon a careful description of what happens when a child reads. Goodman and Goodman (1965), designers of the taxonomy, have used it as an instrument to infer how children learn to read.

Although their categories of errors have differed widely, types of errors have been a concern of all investigators of oral reading errors. Schale (1964: 104-105) attempted a comparison of the distribution of error types of frequency rank as reported by ten researchers. However, the variability among definitions of categories from one researcher to another made comparison very difficult. Spache (1964: 249-258), in a review of oral reading studies and analysis systems, revealed the lack of clear-cut differentiation of types of errors.



Weber (1968: 101) points out that the inclusion of categories such as poor enunciation and hesitation has been a result of confusion in regard to the function of oral reading. These categories were considered important because oral reading was thought of as a type of performance. The implication here is that reading for meaning was secondary to oral expression in reading. Repetition was considered an error on the same plane as substitution, omission, or insertion in several taxonomies. This contrasts with Goodman's (1965) study of repetitions in grades one through three, which revealed that most repetitions were made to correct misques such as substitution. He was led to suggest that repetitions could be an important technique for deriving meaning.

In support of this suggestion, Clay (1968) found that 26 per cent of the errors made by her sample of grade one children, were self-corrected. Goodman (1967a) in her study of first-grade reading development found corrections to range from 20 to 46 per cent. She added that when the children attempted corrections they were acceptable more than 75 per cent of the time.

Until recent studies, errors were described with little regard to the linguistic function of the elements that were incorrect. Most systems focused on words or letters or some combination of both. Inaccurate responses were usually considered indications of perceptual inaccuracy or evidence of a poor sight vocabulary rather than responses based on the reader's expectations based on his knowledge of the constraints imposed



by grammatical structure. Recent research has provided evidence of the child's awareness of these constraints. Clay (1968) found that 79 per cent of all substitutions made by grade one children were unchanged as to grammatical class. Goodman (1967) found that in the majority of cases the children's miscues generally had the same grammatical function as the stimuli. In cases where they did not, the syntax and meaning of the sentence or passage was usually upset.

Goodman and Goodman (1965) were among the few who took into account in their taxonomy the consequences of an error to the meaning of a sentence or a passage. Their differentiation between levels of language made it possible for Goodman (1967a: 259) to hypothesize that as beginning readers increase in proficiency, the per cent of miscues decreases at the word level and increases at the phrase, sentence, and "less than a word" levels. That is, the children are using increasingly larger sequences of language while at the same time they are becoming more discriminative of differences within words. Because in the taxonomy each miscue was classified according to its effect upon syntactic and semantic acceptability, Goodman (1967a : 260) could hypothesize that as a reader increases in proficiency, he makes an increasing percentage of miscues which do not change syntax or meaning.

In spite of category differences in taxonomies, some comparisons may be made in error types. Research agrees that the substitution of a different word from the stimulus outnumbers other types of errors at





all ages. Schale (1964) found substitution errors and repetitions occurred most frequently, while Madden and Pratt (1941) cited mispronunciations (which can be equated with substitution errors) as the most prevalent error. Schale traced the pattern of errors made by 180 children, forty in every other grade from grades two through nine. The materials used were the Gray Oral Reading Test (Robinson, 1963). She found that over-all occurrence of errors decreased from grade to grade. Omissions and insertions remained proportionately the same. It is of interest to note that at the grade four level repetition errors (words corrected plus other repetitions) accounted for 45 per cent of the total errors. This figure suggests a particularly strong repetition technique at this level of proficiency. No doubt the fact that silent pre-reading was not allowed would account in part for the need to repeat in order to gain meaning. Christenson (1966) reported that repetitions occurred more frequently than the expected frequency of this kind of error at the independent reading level, but not at the instructional or frustrational reading level. This suggests that children must be able to handle their reading material with facility before they will use repetitions to any extent as a meaning-getting tool. Omissions decreased and insertions increased as reading level of material increased. That is, the child who found reading material more difficult would have fewer omissions and more insertions than in easier material. Schale found that omission errors were highest at grades four to six. Unlike Christenson, who found the



least number of insertions at the independent reading level, Schale reported that insertions were abundant only when the child was reading at grade level or one passage below. This may suggest that the child must be able to read well enough in the material to make insertions. On the other hand, Smith (1954) and Monroe (1932) found that when better reading groups were absorbed in the meaning of what was being read, they made more omission and insertion errors in challenging paragraphs. Goodman (1967a: 258) found that as the beginning reader becomes a more proficient reader, the percentage of insertion type miscues increases. Substitutions were 57 per cent, omissions 31 per cent, and insertions 8 per cent of the total number of miscues. The most proficient readers were those who averaged from six to fourteen miscues per hundred words. Proficiency declined when miscues reached above or below these figures. In agreement with this finding, Goodman (1969: 13) observes that "it appears likely that a reader who requires perfection in his reading will be a rather inefficient reader."

It may be that children will differ in the cues they use according to their training or conceptual differences. Some research has tried to distinguish styles of thinking such as analytic-synthetic and convergent-divergent. Other studies have attempted to relate reading achievement to auditory and visual skills. Still others have investigated personality traits in relation to reading achievement.

Bennett (1942: 36-37) analyzed errors in oral reading responses by



children in the middle grades. She concluded that retardation in reading can be related to the tendency to give a response associated with the stimulus before it is fully perceived.

Kagan (1965) classified children as impulsive or reflective, according to their performance in matching pictures and designs. Errors in word recognition and the reading of paragraphs were found to be more frequent among impulsive than among reflective children.

Cromer and Wiener (1967) state that poor readers have evolved different response patterns; therefore, they generally work out the cues by responding more idiosyncratically. Reading difficulty occurs when there is a mismatch between the material being read and the response patterns of the reader.

In the present study, certain subjects may have no prior experience with certain word sequences in the reading material. They may therefore be unable to give the proper response patterns; or they may hesitate or repeat in an effort to gain additional information.

Biemiller (1969) noted that poor readers (particularly those with low I.Q.), find it harder to master graphic information. He suggested that grade four students, retarded in reading, who overuse graphic information might be doing so because they have been stuck too long in the use of strategies emphasizing contextual information at the expense of graphic information.

Cues which children use may also shift with the level of difficulty



of reading material. Biemiller found that grade one children reverted to an earlier phase of reading when presented with difficult material.

Goodman (1968) has pointed out the high degree of reading proficiency needed to decode written language and at the same time recode it into oral language. This is essentially what is required in oral reading. Goodman (1967c) believes that a reader with some degree of proficiency decodes directly from the graphic stimulus, and "deep structure." The resulting oral output may involve transformations in vocabulary and syntax, even if meaning is retained. The best oral reader is not necessarily he who has the fewest miscues, but rather he who comes closest to decoding the meaning intended by the author. The child who uses alternate grammatical transformations to express what he has read may be demonstrating a type of flexibility in language and thinking similar to that mentioned by Loban. (See Section II).

Morton (1964) relates omissions in oral reading to immediate memory. All the material in the eye-voice span is available as a response. But due to a breakdown in the processing of the stimulus words, the responses may be uttered in a different order, which, in turn, may lead to decay of the memory trace of the perceived stimulus, resulting in an omission error. Morton classified omissions as special cases of reversal errors.

Geyer (1968) found that when the temporal eye-voice span remained at one second, a balance was maintained between input and





output, resulting in smooth oral reading. However, if input proceeded too far ahead of the response system, or if recognitional or response difficulties arose, the scanned elements would be lost from storage before they could be responded to. The subject would be required to make a regressive eye-movement to scan again the lost elements.

This aspect of reading which is perhaps peculiar to the oral task may occur in the current study. Grade four children who are accustomed to reading silently may find it difficult to maintain the balance between the eye and the voice, resulting in regressions or omissions. Perhaps the most proficient readers may be most likely to experience this type of oral reading difficulty.

The factors of conceptual and personality differences, as well as differences in training and in material, may affect the number, types, and levels of miscues committed in oral reading. Although these factors are not being studied in the present investigation, they may be considered in the discussion of miscues.

The factors of sex and I.Q. will be considered in relation to oral reading miscues. Most studies agree that girls' performances on oral reading tests are superior to those of boys. However, the criteria upon which judgment is made are factors such as number of errors, repetitions, and phrasing rather than successful decoding of the message. Robinson (1963) reported that sex differences exist in the data from the standardization of the new Gray Oral Reading Tests, and that separate norms of



accuracy, allowing boys more errors than girls, were being provided. Wilson, et al., found girls to be superior to boys in learning letter and word forms in grades one to three.

Christenson (1966), in his study of oral reading errors of children in grade four, five, and six, found a significant difference in frequency between the kinds of errors of boys and girls reading at frustration level, although the difference at the independent and instructional levels was not found to be significant. He reported that with all levels of reading materials, boys had more omissions and substitutions, but fewer insertions and repetitions, than girls. Perhaps differences in number of error types are indicative of emphasis upon certain cue systems by boys and girls.

Since, in the current study, oral reading will be viewed as a decoding as well as an encoding process, it may be that I.Q. may be more intimately related to oral reading proficiency than in the usual oral reading test.

## VI. SUMMARY

The application of psycholinguistic principles to reading necessitates knowledge of the language and its systems, an understanding of the differences and similarities between oral and written language, some knowledge of the development of language and thought in the child and the relationship which exists between the two, along with theoretically based ideas on what reading is. In other words, it requires knowledge of the language (from linguistics), knowledge of principles of learning



(from psychology), and knowledge of reading (from both theory and practice). In the present study, oral reading errors are being described according to the Goodman Taxonomy, in the hope that such description may provide information about a stage of reading development, and by inference, certain insights into reading strategies used by children at this stage. These insights might then be translated into procedures which may contribute to more effective learning of reading.



## CHAPTER III

### DESIGN OF THE STUDY

This chapter delineates the selection of the test sample, the selection of reading material, and the collection of data. In the analysis of data the chapter discusses, under separate sections, the taxonomy and its categories, the comprehension rating, interjudge reliability, and the statistical procedures used to analyze the data and to determine rater agreement.

#### I. THE TEST SAMPLE

The population consisted of all children in the fourth year of the six-year program in the Edmonton Public School System. The test population was comprised of the 276 children from eleven classrooms in three schools. These schools were in the middle-class socioeconomic areas as designated by supervisory personnel of the Edmonton Public School Board.

Children in the test population were administered the California Reading Test in April, 1969. The scores were used to choose the test sample in the following manner. The individual total raw scores were tabulated from the highest to the lowest, and a median score was arrived at. The raw scores were then converted to grade scores, and the test sample was chosen from those who scored six months below the median score. This limited the test population to the middle achievers, as measured





by the California Reading Test. These average readers in grade four consisted of ninety-four children. The investigator then selected randomly for the test sample, thirty of the ninety-four children, with equal numbers of boys and girls, an equal number above and below the median point in reading achievement and an equal number from each of the three schools assigned for this research.

TABLE II  
PUPIL TEST SAMPLE

Reading Achievement of Pupils	School			Sex		I.Q. Groups					
	I	II	III	Boys (B)	Girls (G)	I		II		III	
						B	G	B	G	B	G
L.A. Pupils N = 15	3	8	4	9	6	3	2	3	3	3	1
H.A. Pupils N = 15	7	2	6	6	9	1	1	3	4	2	4
Total Test Sample	10	10	10	15	15	4	3	6	7	5	5

A difference in the number of boys and girls at reading achievement levels was offset by the balanced distribution of boys and girls among the three I.Q. groups. While the three schools were all designated middle-class, there are recognizable differences from district to district in a city the size of Edmonton. To keep the socio-economic element in balance, an



equal number of children was selected from each of the schools as an added precaution. Further random selections were made so that substitutes would be available, if needed. Substitutions were made in eight cases. For four of the originally selected subjects, scores for the Logge-Thorndike Intelligence Tests, Level 2 A Primary, were not available. Three other subjects were eliminated because of speech impediments, and one because of an emotional disturbance. The subject substituted in each case was of the same sex and reading achievement level, and from the same school as the subject deleted from the test sample.

Those subjects who were below the median point as measured by the California Reading Test were termed Low Average (L.A.), while those who were above the median point were termed High Average (H.A.). However, it must be kept in mind that there was a difference of only one year in reading achievement level between the highest score and the lowest score of those in the test population. The sample was selected from within this narrow range of reading achievement to fulfil the purpose of the study which was to describe what average grade four children do when they read.

A measure of the intelligence of each of the thirty subjects was derived from Logge-Thorndike test scores, entered in cumulative records at each school. For purposes of statistical analysis, the subjects were divided into three groups: Low I.Q. (Group I), Medium I.Q. (Group II),



and High I.Q. (Group III).

Seven children (four boys and three girls) with I.Q. scores in the 87-99 range comprised Group I, thirteen children (six boys and seven girls) with I.Q. scores in the 102-107 range comprised Group II, while Group III was made up of ten children (five boys and five girls) with I.Q. scores in the 110-118 range. The mean I.Q. score of Group I was 92.85, of Group II, 104.92, and of Group III, 113.9.

The chronological age of each subject was obtained from the school records in the event that it might be of value in interpretation of data. The range of chronological ages was from 113 to 123 months, with one exception of 127 months. The average was 118 months.

## II. THE SELECTION OF READING MATERIAL

The reading material selected for the children to read orally was a short narrative entitled "Duke, a Dog Hero" (Hurlburt, 1956) a copy of which is included in Appendix B. It was chosen for its brevity, readability level, and interesting content. According to the Dale-Chall Readability Formula, the reading grade level of the selection was approximately 4.9 which was deemed an acceptable level for grade four children of average reading achievement, within two months of the end of their school year. The selection was slightly over four hundred words in length, well-suited to re-telling as well as to reading since it contained characters, a simple plot, and action, and lent itself well to oral



interpretation. The sentence structure and vocabulary were sufficiently challenging to stimulate a variety of miscues, which, when carefully analyzed, might provide insight into why the miscues were made.

### III. THE COLLECTION OF DATA

The data were collected in late April and early May during several sessions at the three schools. The interviews, which were conducted with each child individually, were held in the privacy of the nurse's office in each school, thus ensuring freedom from distraction.

The investigator used a cassette-type tape-recorder to record the whole session with each child. The session began with the establishment of rapport between the researcher and the child. Usually the mention of being able to listen to his voice on tape after the session had been recorded, was enough to arouse the interest and gain the cooperation of the child. When the preliminary conversation was over and the child recorded his name and birth-date on tape, he was then asked to read aloud the reading selection which he had never seen before. He was told that he would receive no prompting nor aid. While the child read from the book, the researcher recorded observations and reading errors on a transcript of the story (Appendix C). Immediately the story had been read, the child was asked to retell as much as he could remember of the story. The purpose of this part of the session was to check how well the child had comprehended what he had read. The child was not told in advance that he would be asked to retell the story.





If the child seemed unable to get started, a single open-ended question such as, "What happened in the story?" or "What was the story about?" was asked. When the child had told as much as he wished, other open-ended questions were asked. For example:

- (a) Can you think of anything else?
- (b) What happens that's exciting in the story? Tell me about it.
- (c) Who is in the story? Tell me about them.

Further questions were asked by the investigator as a means of trying to find out why the child made certain errors, whether he really understood or could vocalize the meaning of some of the words he had read, and whether he could infer from information given. For example:

- (a) What is meant by the K-9 (canine) Corps?
- (b) What kind of a ladder is a rickety ladder?
- (c) How did the people of the neighborhood learn about what Duke had done for the little girl?

The investigator scored the child's comprehension by listening to the retelling of the story from the taped interview. The measure for comprehension rating (Appendix E) will be discussed in Section V of this chapter.

Oral reading errors were carefully reviewed after the recording sessions by listening to the taped reading, and were categorized according to the Goodman Taxonomy of Miscues (Appendix A).



The analysis of data, both formal and informal followed. Included in the informal analysis, in Section IV - VI, is a discussion of the taxonomy (its use and description), the comprehension check, and inter-judge reliability. A discussion of statistical procedure used in the formal analysis follows in Section VII.

#### IV. A TAXONOMY OF READING MISCUES

The category system of the Taxonomy ( Goodman, 1967a) is based on linguistic elements. It consists of twenty-eight categories, all with sub-categories.

The taxonomy, theoretically, allows a miscue to be entered under each of the twenty-eight categories. Decisions must then be made as to which sub-category within each category the miscue will be assigned. But because sub-categories were not always mutually exclusive, arbitrary decisions were sometimes necessary. For example, when the word "serve" was substituted for "served," the miscue could be classified as an omission at the sub-morpheme level, or a substitution at the bound morpheme and the free morpheme levels. Such miscues were arbitrarily placed at the free morpheme level, unless the context rendered them syntactically and semantically unacceptable.

Close graphic-phonemic correspondence signaled that the child was paying attention to letter-phoneme relationships or parts of words. Therefore, in miscues where the stimulus and response were closely related both graphically and phonemically, but the response was not a word, the



level coded was likely to be sub-morphemic (e.g. "runj" for "rung").

When the word "ever" was read as "even," the response and stimulus differed only by one grapheme, but there was very little phonemic correspondence between them. This miscue was coded on the free morpheme level as a substitution miscue.

### The Extent of the Miscue

The first task in analyzing an error was to determine the extent of the miscue. The miscue included as many of the words as were changed in meaning or function. In some cases, the part of speech of a word following the miscue was changed, and it too was counted in the miscue. For example, the substitution of "the" for "at" in the phrase "at last" changes the function of the word "last". This miscue in this case would be counted as two words, "at last". In this study such miscues were coded as substitutions at the phrase level. There were times when a complex miscue was counted as one at the syntactic level, but more than one at the free morpheme level. For example, in "the dog was <sup>they</sup> called <sup>him</sup> a hero," syntax is changed in the transformation from a passive to an active sentence, but at the word level there are three miscues, the omission of the word "was" and the insertion of the words "they" and "him." If two or more related words appeared in sequence in the miscue, they counted as one miscue. For example, "They did not <sup>make</sup> many brave acts."



### Corrections of Miscues

When the extent of the miscue had been determined, consideration was given to whether or not it was corrected, and if so, at what instance. For example, in "took <sup>off</sup> ~~^~~ the little girl's feet," a correction was made, deleting the word "off". However, in "Duke <sup>had</sup> ~~^~~ found a home," no correction was made. Both reading behaviors could be noted. When a miscue was corrected, at which point it was corrected and whether or not it was successful was noted. For example, one child read "tricky-ricky-rickety," showing a gradual progression from the miscue to the final successful correction on the third attempt. "Dike" for "Duke" was repeated by one child as often as it appeared in the story (twelve times) without any attempt to correct. The child was apparently satisfied with "Dike" as a name for the dog. In an additional example, in one instance the word "rung" was read as "run" and then corrected to "runj." When the word "rungs" appeared farther on in the story, it was pronounced "runjes".

Whether or not children attempt or do not attempt to correct their miscues can provide insight into the kinds of cues they may be using in their reading.

### Grammatical Function of Stimulus and Response

The grammatical function of the stimulus and the grammatical function of the response were both classified in one of the six sub-categories (noun, verb, adjective, adverb, function word, indeterminate). If the miscued response was more than one word, or if the miscue was one





of sentence intonation, it was coded as indeterminate. The sub-category was chosen on the basis of actual function. Therefore, if it seemed clear that a non-word was actually being used in a certain way, it was presumed to belong to that sub-category. For example, one child repeatedly read "ricket" for rickety", and, upon questioning, revealed that to him "ricket" did indeed mean a special kind of ladder.

Question: How did the neighbours find out what Duke had done for the little girl?

Answer: Well, some ricket ladders are close to another ladder and another boy could have seen.

Question: What is a rickety ladder?

Answer: A ladder that is attached to other ladders that are attached to other windows.

Question: What makes you think that?

Answer: Cause I've seen a ricket ladder. I lived in an apartment for a couple of days when we were at my uncle's for a holiday.

The word "ricket" was in this case coded as an adjective.

The taxonomy allows for classification of the function words (both stimulus and response) as noun marker, verb marker, verb particle (e.g. picked up), clause marker, phrase marker, intensifier, conjunction, negative, and exclamation.



### Types of Miscues by Levels

The type of miscue and the level of miscue were considered together in the analysis. Since one miscue could be classified at different levels, and since the type of miscue sometimes changed from level to level, there was some difficulty in reconciling these differences within the classification of the taxonomy. It was necessary, in using the taxonomy, to decide (arbitrarily, at times) at which level the miscue belonged and then code it as to the type of miscue it was at that level. The researcher followed Goodman (1967) in deciding arbitrarily that in doubtful cases, whenever a miscue could be coded at more than one level, it would be coded on the highest one. That is, while the substitution of the word "laid" for "lay" might be coded on sub-morphemic, bound morpheme, or free morpheme level, it was in fact coded at the highest level of the three, the free morpheme level. It could have been classified as an insertion at the sub-morphemic level, since an additional morpheme /d/ was inserted in the response. However, it could also have been sub-categorized as a substitution at the bound morpheme level, since the inflection /ed/ was substituted for the null inflectional suffix. As well, the observed response "laid" is a substitution at the word level. In this case, it was assumed that the child who said "laid" for "lay" was exhibiting a speech idiosyncrasy, and the miscue was coded at the free morpheme level. However, it may be noted that the choice of level determined the choice of miscue type. If the level could not be



clearly determined after an in-depth analysis, the miscue was entered at the highest level in question. This decision no doubt swelled the number of free morpheme level miscues, as well as substitution-type miscues.

Following are examples of types of miscues on the different levels. Response precedes stimulus in each case.

In order for a miscue to be categorized at the sub-morpheme level, the miscue must involve a shift within a morpheme. That is, there must be phonemic correspondence between the expected response, and the observed response.

#### Sub-morpheme level

1. Substitution: reckety for rickety
2. Insertion: trickety for rickety
3. Omission: danging for dangling
4. Reversal: was for saw

Bound morpheme level. Included here are miscues involving all inflectional, derivational, and combined form morphemes.

1. Substitution: older for oldest
2. Insertion: returned for turned
3. Omission: other for another
4. Reversal: no examples exist in the data for this study. A possible example would be: side of the opening for sides of the opening.



### Free morpheme level.

1. Substitution: security for sentry
2. Insertion: turned him over into the street for turned him  
into the street
3. Omissions: strong teeth for strong white teeth
4. Reversal: slowly moved for moved slowly

Phrase level. This category was marked when the miscue caused a syntactic change at the phrase level, either within the phrase or by a substitution of one phrase for another.

1. Substitution: he guided her for he guided the little girl's feet.
2. Insertion: kind of master for kind master
3. Omission: the girl's feet for the little girl's feet
4. Reversal: wide jaws for jaws wide

### Sentence level. This is a graphically determined level.

Substitution: Sometimes two sentences were substituted for two other sentences. For example, one child said, "Ever so gently, Duke opened his jaws wide and took the little girl's feet, one at a time, in his strong white teeth. He guided her feet to the rungs of the ladder" for "Ever so gently, Duke opened his jaws wide and took the little girl's feet. One at a time, in his strong white teeth, he guided her feet to the rungs of the ladder."

At other times, two sentences were substituted for one. For example, one child said, "Then she started down the rickety ladder again. Her feet





slipped and she could not find the top rung of the ladder" for "When she started down the rickety ladder again, he feet slipped and she could not find the top rung of the ladder."

Changes at phrase or sentence levels were sometimes brought about by complex patterns of interrelated substitutions, omission, insertions, or reversals. For example, a child said, "but <sup>was</sup> ^ not to the happy ^ <sup>at</sup> home and the kind <sup>of</sup> ^ master he deserved." While such complex patterns of miscues were difficult to analyze, they did serve to point out reading difficulties in the phrasing of the selection.

### Graphic Miscues

The present investigator followed the coding of miscues according to the taxonomy presented in Goodman (1967a). Each miscue which could, theoretically, be classified under each of the twenty-eight categories, was categorized according to its particular context. All items which showed some type of graphic similarity between stimulus and response were coded as graphic miscues. The amount of graphic similarity can range from words which are identical visually to words which are similar in configuration. Following are the sub-categories with examples:

1. Response and stimulus differ by one grapheme: even for ever.

( This miscue was also coded as a substitution at the free morpheme level. Although "ever" and "even" differ by only one grapheme, there is little phonemic similarity between them. It is therefore assumed that



the child miscued at the word level. A child must be aware of graphic-phonemic correspondence in order to miscue at the sub-morphemic level.)

2. Similar spelling: crops for corps (coded as a substitution at free morpheme level.)

3. General configuration corresponds: carefully for cruelly (coded as a substitution at free morpheme level.)

4. Response was a sounded non word: korps for corps (coded as an insertion at sub-morpheme level.)

5. Response and stimulus are homographs: (/riyd/ for /red/)

No examples exist in the data.

6. Splitting syllables (e.g. /lit + tal/ for little): No examples exist in the data.

7. Allograph: (a variation in the graphic presentation of a word): "K-9" for "canine."

Since graphemic miscues result from the characteristics of written language, punctuation and typographical elements may be considered as graphic miscues. Although the taxonomy allows for the coding of intonation miscues in an intonation category, it makes no provision in the graphic category for the coding of miscues of the child who ignores punctuation signals. This omission may serve to de-emphasize the need for teaching and learning the specific meanings of punctuation signals as a comprehension aid.



The taxonomy provided no categories in which to tabulate the difficulties of the graphic position of words as the child moves his eyes from one line of print to another. Careful research of this problem might indicate whether perceptual difficulty or an impulsive nature is involved in this type of miscue, or whether, instead, it may be indicative of a certain stage of development. It is important that this phenomenon be recognized in a taxonomy of reading miscues.

With children in the present study, the ignoring of punctuation signals and the problem of words or phrases divided at the end of a line occurred often enough to warrant the inclusion of graphic sub-categories for their tabulation. However, no new sub-categories were added to the taxonomy for this study. The number of graphic miscues as tabulated was therefore less than if these sub-categories had been included.

### Phonemic Miscues

These miscues were coded similarly to the graphic miscues. Coding was based on differences in sound between the given and the expected response. Response precedes stimulus in each example.

1. Response and stimulus differ by a single vowel phoneme:  
ricket/rickety.

2. Response and stimulus differ by a single consonant phoneme:  
glided/guided.

3. Response and stimulus are homophones: two/too, as in "since returning from the <sup>world</sup> war, two." The different intonation pattern



which accompanied this type of miscue indicated to the researcher that the child had indeed read "two" for "too."

4. Morphophonemic variant: /dɜːrv/ for deserve.

5. Full vowel substitution for schwa (/riketi/ for /rikəti/):

No examples exist in the data.

6. Response and stimulus differ by a two-phoneme sequence: climbing/clinging.

### Syntactic Miscues

Syntax was coded if the syntax of the passage was changed in some way by the oral reader. In each example, response precedes stimulus.

1. Single element: he <sup>had</sup> / deserved/ he deserved

2. Rephrasing with basic elements retained: as if he protected/ as if to protect.

3. Rephrasing with re-wording: When he . . . / Then as . . .

4. Dialogue carriers (e.g. "Stop! Stop!" he shouted): there were no examples in the data.

### Semantic Miscues

The semantic category measured the amount of similarity in meaning between the observed response and the expected response.

1. Synonym substitution: great German Shepherd dog/big German Shepherd dog

2. Associated meaning: climbed up/jumped up

3. Antonym (e.g. he ran up / he ran down): No examples exist in the data.





#### 4. Similar name: Dike/Duke

##### Transformations

The observed response precedes the expected response in each example.

1. Alternate (equivalent phrases): he protected / to protect
2. Not equivalent: When they left Duke / When they left, Duke ..
3. Transformation to dialect-based form. (e.g. he run fast / he runs fast): No examples exist in the data.
4. Revision to achieve syntactic consistency: During the war, Duke was a big German Shepherd dog. He served . . . / During the war, Duke, a big German Shepherd dog, served . . . The child apparently failed to recognize the nominative in apposition construction, "a big German Shepherd dog," and the commas which are clues to this construction. He inserted the word "was," and then, in order to maintain grammatical correctness, he substituted the terminal intonation pattern and began his next sentence by the inserted word, "He."

##### Intonational Miscues

Obvious miscues in intonation were coded under the following sub-categories:

1. Within words: Páctic for Pacífic
2. Between words: rickety' ladder for rickety ladder'
3. Within the sentence: Everyone talked of his courage and let the dog know <sup>that</sup>  
what they thought of him. The substitution of "that"



for "what" in this sentence is accompanied by a change in intonation pattern to fit the new meaning.

4. Sentence terminal intonation: ...porch  $\wedge$  floor for... porch floor.

5. Conjunction substituted for terminal punctuation (At last Duke had found a home that he deserved  $\odot$  and  $\rightarrow$  . . . Each night . . . )  
No examples exist in the data.

### Syntactic Acceptability

The degree of syntactic acceptability of the miscue is measured in the following sub-categories:

1. Acceptable only with words prior to miscue: "... heard that (substitution miscue) Duke had done, . . . " In this sentence the what clause marker, "what" signals a dependent clause and serves as object in the clause. The substituted clause marker, "that" signals a dependent clause but it has no function within the clause. The substitution of one clause marker for another with different functions renders the dependent clause syntactically unacceptable. However, that part of the sentence prior to and including the miscue is perfectly acceptable. Goodman (1967: 181) found that children are more likely to produce syntactically acceptable sequences of words prior to the miscue rather than after the miscue. Since the child reads from left to right in a linear fashion, the child's experiences with language enables him to predict a word or phrase which makes sense in the context of what he has just read. However, as he



proceeds, he may find that his selection is not acceptable in the remaining part of the sentence. The facility with which children as they read can correctly predict syntactic relationships within sentences is a measure of their proficiency.

2. Acceptable only with words after the miscue: "During the war, Duke, a big German Shepherd dog, served as a sentry <sup>dogs</sup><sub>dog</sub> (substitution miscue) in the Pacific." The plural form of dog does not agree with the part of the sentence prior to the miscue. However, the last part of the sentence, "sentry dogs in the Pacific" is syntactically acceptable.

3. Acceptable in sentence only: "Each night he slept beside the bed of the <sup>older</sup><sub>oldest</sub> (substitution of er for est) boy. (The fact that there were three boys in the story make this response unacceptable in the total context of the passage.)

4. Acceptable in passage: ". . . took the little girl's feet . . ." The omission of the word "little" makes no difference to the syntactic acceptability of the passage.

### Semantic Acceptability

The degree of semantic acceptability depends upon the grammar, but also the consistency of meaning in a broader context.

1. Acceptable only with words prior to miscue: "During the second World War, many dogs served their country <sup>on</sup><sub>in</sub> the famous K-9 Corps." The substitution of "on" for "in" renders the sentence semantically acceptable only with words prior to the miscue.



2. Acceptable only with words after miscue "... in his strong <sup>with</sup>white teeth." The substitution of "with" for "white" results in the phrase "with teeth," which is semantically acceptable.

3. In sentences only: "During the <sup>winter</sup>war, Duke, a big German Shepherd dog, served as a sentry dog in the Pacific." The substitution of the word "winter" for "war" is semantically acceptable in the sentence.

4. Acceptable in passage: "... then another <sup>one</sup>^ which was fifteen feet high." The insertion of the word "one" is semantically acceptable in the full context of the story.

### Change of Meaning and Syntax

Meaning was coded as being unchanged if the miscue made no difference in the passage meaning: "Duke jumped up and raced down his own stairs stairway." The word "stairway" (the stimulus) has a similar meaning to the word "stairs" (the response). Syntax was coded as being unchanged if the miscue made no difference in the grammatical relationships between words, phrases, clauses, or sentences in the selection: "... as the child climbed down, he moved slowly <sup>before</sup>below her . . ." The adverb phrase response "before her" is equivalent in structure to the adverb phrase stimulus "below her". It was possible for a miscue to change both meaning and syntax: "When they left ^ → Duke . . ." In this example, the comma was ignored and intonation shifted to change both syntax and meaning. Sometimes a miscue changed neither meaning nor syntax: "... a <sup>great</sup>big German Shepherd dog . . ." A miscue could change meaning but not





syntax " . . . she could not hold find the top rung . . . " There could also be a change in syntax but not meaning. "At last Duke had found a home and that he deserved." The substitution of "and" for "that" and the omission of "he," produces a sentence in which the syntax is changed but similar meaning is retained.

## V. THE COMPREHENSION RATING

The comprehension rating was based on that used by Goodman (1967a: 37). The researcher made a careful analysis of the story chosen for the children to read. A detailed outline divided the story into three sections (pre-kernel, kernel, post-kernel) containing eight subsections, each with supporting details. Four "time" divisions were delineated as well. Points were assigned for selected levels of recall; characterization, and plot comprehension. A full explanation of the Comprehension Rating is included in Appendix E.

## VI. INTER-JUDGE RELIABILITY

Two taped interviews were randomly selected to be used for the inter-judge reliability check on the scoring of comprehension. The researcher and two raters scored the comprehension by listening to the retelling of the story from the two taped interviews, as well as the oral reading of the story on tape. Reliability between the researcher and the two independent raters was checked to determine their rate of agreement.

The same taped interviews were used for verification of the



researcher's coding of miscues according to the Goodman Taxonomy. The researcher and two trained coders, both experienced teachers and graduate students who had studied linguistics, coded forty-five agreed upon miscues from the two oral readings. The Arrington Reliability Formula (Fiefel and Lorge, 1950) was used to compute the reliability score.

## VII. STATISTICAL TREATMENT OF THE DATA

In order to complement the non-statistical description of the reading phenomena of grade four children, a hypothesis was formulated, and tested statistically. T-tests were applied to test the significance of the effects of sex and reading achievement and a one-way analysis of variance to test the significance of the effects of I.Q. on the pupils' number of reading miscues.

A proportions test (Ferguson, 1966: 176-78) for significance was used to determine the effects of sex, reading achievement, and I.Q. on the pupils' per cent of reading miscues corrected.

A proportions tests for significance was used to determine the effects of sex, reading achievement and I.Q. on the pupils' per cent of miscues (a) by miscue type and (b) by levels of language.

Pearson product-moment correlation coefficients were calculated to provide additional statistical information.

The statistical test used to determine Inter-judge Reliability on the Comprehension Measure was a Single Factor Experiment with



Repeated Measures (Winer, 1962: 125-132). The per cent of reliability on the Taxonomy of Miscues categorization was determined by using the Arrington Reliability Formula: 
$$\frac{2 \times \text{Total of Agreements}}{2 \times \text{Total of Agreements} + \text{Disagreements}}$$

## VII. SUMMARY

In summary, a test sample of fifteen boys and fifteen girls in grade four, average in reading achievement, was selected from three schools in middle socio-economic class areas within the Edmonton Public School System.

Taped interviews with each child individually included the child's oral reading and the re-telling of the story he had read. Miscues in the oral reading were categorized according to the Goodman Taxonomy. Comprehension was checked by listening to the re-telling of the story, and rating each child according to the Comprehension Measure.

The chapter has also presented an explanation of the Goodman Taxonomy categories and has outlined the methods of description, both statistical and non-statistical, of the observed reading phenomena.



## CHAPTER IV

### FINDINGS OF THE STUDY

This chapter will examine the data obtained from the oral reading of thirty grade four children of average reading achievement, from three schools of the Edmonton Public School System. Both statistical and non-statistical descriptions of reading phenomena are being reported so that informal observations regarding both individuals and groups may complement the results of the formal analysis.

The findings, both statistical and non-statistical will be presented together under the following headings:

- I. Reliability of scoring
- II. Children's number of miscues
- III. Children's corrections of miscues
- IV. Children's miscues by types and by levels of language
- V. Children's comprehension of the reading selection.

#### I. RELIABILITY OF SCORING

Verification of the researchers coding of miscues according to the Goodman Taxonomy showed an acceptable rate of agreement. The Arrington Reliability Formula gave an 88.16 per cent reliability score among the three coders. A point of some disagreement was the syntactic acceptability of non-words; another was the degree of syntactic and semantic acceptability of reading miscues. In general, disagreements





were between sub-categories within a category.

Inter-judge reliability on the Comprehension Measure was found to be 94 per cent ( $r_k = .941$ ), which was deemed an acceptable reliability score.

## II. CHILDREN'S NUMBER OF MISCUES

The thirty children who read the story material in this study made a total of 849 miscues. The mean number of miscues per hundred words (mphw) was 6.6. The number of miscues made by individuals ranged from 2 - 12 mphw.

No clear relationship emerged between the number of oral reading errors and reading proficiency. The two children who obtained the highest comprehension scores had 8 mphw and 8.5 mphw respectively, the two who obtained the lowest comprehension scores had 2.5 mphw and 7 mphw. In general, those at the extreme lower end of the 2 - 12 mphw range showed poor comprehension of the reading selection. It is probable that accurate oral reading was of more concern to them than understanding what they read. However, this was not so at the extreme upper range of mphw. Here most of the children appeared to be very intent upon meaning. It must be remembered, though, that the children in this study were average grade four readers. With a wider achievement level represented in the sample, the range of mphw could have conceivably been much greater, perhaps with decreased comprehension accompanying a higher number of mphw. Goodman (1967a: 53) found that children in beginning



reading made from 3.7 to 38.1 mphw, with comprehension decreasing as mphw increased. The present investigator is in agreement with Goodman that the number of miscues, in any case, is not by itself an indication of level of reading proficiency. The effect of the miscues upon the communication process is a more productive area of research. The following description of one child's reading serves to illustrate this point.

This child, who rated a comprehension score of thirty-one out of forty (just one point below the top score earned by any child in this study, ), had thirty-seven miscues (or approximately 9 mphw), sixteen of which were omissions. Ten of these omissions were function words which made little difference to the meaning. He corrected six miscues in all, none of which were function words.

Many of this child's miscues seemed to be a result of the discrepancy between the speed of the voice and faster moving eye. It appeared that as he read orally he was mentally digesting the story, leaving out words so as not to decrease his speed. Syntax was not changed by seventeen out of the thirty-seven miscues, and meaning was not changed by twenty-one miscues. Ten of the thirty-seven miscues made no change in either syntax or meaning. Goodman (1967a: 176) suggests that the better beginning readers may have been learning to separate syntactic and semantic cues in their reading. Although the child in the present study was able to integrate syntactic and semantic



cues in more than one-fourth of his miscues, he was also able to separate syntactic and semantic miscues. This ability to change syntax without changing meaning indicates that he is apparently at a developmental stage where meaning relationships are receiving extra attention. Perhaps as a result of a growing awareness of meaning, he may be concentrating upon meaning to the detriment of syntax. This means that the syntax of the oral reading production is more often destroyed although the inner competence with it remains. In developing competence in semantic relationships the child forgoes a measure of oral performance in syntax. Later he will be able to integrate both syntactic and semantic competencies and give comparable performances in both.

Number of Miscues by Sex Groups

The number of miscues made by boys and girls was computed for comparative purposes. Table III shows that boys made 437 miscues while the girls made 412.

TABLE III  
NUMBER OF MISCUES BY SEX GROUPS AND  
THEIR SIGNIFICANCE

Group	<u>No. of Miscues:</u>		Mean	S.D.	d.f.	t	p	*Sign- ificance
	Total	Average mphw						
Boys (N=15)	437	6.79	29.13	9.76	28	.485	0.631	N.S.
Girls (N=15)	412	6.40	27.47	8.36				

\*Significance at .05 level, t = 2.05 for two-tail test.



In order to determine whether boys and girls differed significantly in the number of miscues made, a test for differences between means was applied. There was no significant difference.

The number of miscues made by the Low Average (L.A.) and High Average (H.A.) Achievement Groups was also tabulated. As mentioned previously, the children in this study represent a range in reading achievement of one year only, with the L.A. Group .5 below and the H.A. Group .5 above the median score obtained by all children in the test population. However, as a matter of interest, statistical information on L.A. and H.A. Groups was nevertheless computed.

#### Number of Miscues by Reading Achievement Groups

Table IV shows the two reading achievement groups to be very close in their number of miscues. A test for differences indicated that there was no significant difference between the number of miscues made by the L.A. and the H.A. Achievement Groups. This might be interpreted to mean that the number of mphw varies little among grade four children of average reading achievement. However, when the children were considered as individuals, the mphw ranged from two to twelve, a considerable difference.





TABLE IV  
NUMBER OF MISCUES BY READING ACHIEVEMENT GROUPS  
AND THEIR SIGNIFICANCE

R. A. Group	No. of Miscues		Mean	S.D.	d.f.	t	p	*Sign- ificance
	Total	Average Mphw						
L.A. (N = 15)	423	6.57	28.2	9.38	23	-0.058	0.954	N.S.
H.A. (N = 15)	426	6.62	28.4	8.87				

\* Significance at .05 level,  $t = 2.05$  for two-tail test.

Number of Miscues by I.Q. Groups

The number of miscues made by the three I.Q. groups was tabulated. Since the number of miscues made by the three I.Q. groups was unequal (seven in Group I, thirteen in Group II, and ten in Group III), a truer picture of differences between groups is given by looking at the mean number of miscues rather than the number of miscues made by each group. Table V shows Group III to have the highest mean number of miscues with Group I the lowest.

Significant measures were computed for the number of miscues made by the I.Q. groups. A one-way test of variance showed no significant difference between Groups I, II, and III in their number of



miscues, although mphw increased with I.W. scores.

TABLE V  
NUMBER OF MISCUES BY I.Q. GROUPS AND THEIR  
SIGNIFICANCE

	I.Q. GROUPS			Total
	I.Q. I (Low) N = 7	I.Q. II (Med) N = 13	I.Q. III (High) N = 10	
Total No. Miscues	183	342	324	849
Mean No of Miscues	26.14	26.31	32.40	28.3
S.D.	8.30	10.05	8.30	9.13
Average mphw	6.09	6.13	7.55	6.6
N = 30 Source variation	d.f.	s.s.	m.s.	F      p      * S
Between Groups	2	252.27	126.13	1.52   0.238   N.S.
Within Groups	27	2246.03	83.19	

\*Significance at .05 level,  $F = 3.35$

While the findings were not statistically significant as to number of miscues made by sex and I.Q. groups, it is nevertheless of interest that boys made more miscues than girls and that the High I.Q. Group



made more miscues than either the Low or Medium I.Q. Groups.

Both boys and I.Q. Group III may have been more intent upon meaning, and may have been using certain meaning-getting strategies which increased their number of oral reading miscues. More than the other groups, they may have been silently decoding to meaning directly from the graphic input, and then encoding meaning as oral output, resulting in an increased number of miscues. This stage of development would correspond to Oral Reading Proficiency Level III, as described by Goodman (1968: 19-20). Goodman explains that, although the proficient reader may take in the meaning of a sentence, the syntax he uses to express this meaning as he reads orally may differ from that used in the written language which he is reading. For example, the child may understand perfectly the meaning of a passive transformation sentence but he may express it in the active voice. An increase in miscues in the oral reading would accompany such a phenomenon.

Girls, as well as I.Q. Groups I and II, may have found the story plot in the reading selection more difficult to comprehend. If as Biemiller noted with grade one subjects, shifts in the use of cues accompany materials of varying difficulty, it may be that complex patterns of syntactic and semantic relationships may have caused some of the children in this study to revert to a lower level of proficiency. That is, they may have been forced to revert from reading by phrases to reading by words or parts of words, thus producing fewer miscues but a reduced



level of comprehension.

An additional reason for differences between groups in number of miscues may have been their point of emphasis. Some children with good control of phonics and syntax produced an "automatic" type of oral reading, picking up some of the meaning as they read but missing much which the children searching actively for meaning were able to grasp. Perhaps at grade four children are not yet able to balance and integrate the phonics, syntactic, and semantic cues available to them. Thus the child who struggles to grasp meanings may sacrifice accuracy in oral reading, while the child who strives for accuracy may sacrifice the meaning.

In this study, it would appear that generally the children's comprehension increased as their number of miscues increased. The child who was a "good" oral reader did not necessarily understand what he was reading.

### Summary

The fact that there were such widespread differences in the number of miscues made by children selected from a narrow achievement range of one year would suggest no direct relationship between mphw and reading achievement. The wide range in numbers of miscues among grade four children average in reading achievement was an indication of the diverse paths taken by children as they attempt to decode the written message and encode it into oral language. Boys exceeded





girls in mphw, and mphw increased with increase in I.Q. scores. In the case of the achievement groups, the H.A. Group had slightly more mphw than did the L.A. In no case did the differences between groups reach a level of significance.

### III. CHILDREN'S CORRECTIONS OF MISCUES

Corrections were tabulated according to the Goodman Taxonomy. From 849 miscues, 182 (21.44 per cent) were successfully corrected in the current study. The range of correction was from 6 to 75 per cent. Goodman (1967: 59) reported that children in grade one corrected from 3 to 36 per cent of their miscues, and that Average Readers corrected a greater per cent than Slower Readers. In the present study the child (girl) who corrected the largest per cent of miscues and the child (boy) who corrected the smallest per cent of miscues rated comprehension scores of twenty-nine and thirty-one, respectively, and were both quite proficient readers. While a strong correction strategy may have helped the one child to understand what she read, the other one appeared to comprehend at a high level with very few corrections. There is, of course, the possibility that the latter one may have been correcting silently as he read. At any rate, the per cent of miscues overtly corrected by these grade four children was not clearly related to level of reading proficiency, as it appears to be from the Goodman study. In beginning readers comprehension increases with corrections because every available cue is required to arrive at meaning. However, the additional experience



in reading gained by grade four children enables them to comprehend with fewer cues and to make better predictions which require fewer corrections.

Occasionally an attempted correction was not successful. However, when children attempted to correct their miscues they were successful 95 per cent of the time. Goodman (1967a: 65) found that beginning readers made successful corrections 75 per cent of the time. The difference indicates that by grade four, children have become more aware of the grammatical and semantic constraints upon words, and that they have grown in their ability to integrate the different cue systems.

All children in the present study corrected some miscues. The range of corrections was from two to twelve for the 429-word story, or .47 to 2.8 per hundred words.

For more than three-fourths of all miscues made in this study, no attempt to correct was made. This would lead one to believe that the children were depending on the structure and the meaning of the language to differentiate between miscues and that it was only when the miscue made the sentence unacceptable syntactically or semantically that the child regressed to correct. There were times when the researcher felt that the child had regressed and corrected mentally a sentence with which he was dissatisfied. Occasionally this theory was supported when a child retelling the story, told it as it was in print, and not as he had read it aloud.



Whether or not the per cent of miscues corrected was related to sex, reading achievement, or I.Q. was computed by using a test for the differences between two proportions.

Miscues Corrected by Sex Groups

Table VI shows that the difference between the per cent of miscues corrected by boys and girls was not significant, although boys corrected a greater per cent of their miscues than did the girls. The difference approached the .05 level of confidence.

TABLE VI  
MISCUES CORRECTED BY SEX GROUPS AND  
THEIR SIGNIFICANCE

	Boys N = 15	Girls N = 15	Total N = 30
No. of miscues	437	412	849
No. corrected	96	86	182
Per cent corrected	21.97	20.87	21.44
* z value	1.89 (N.S.)		

\*Significance beyond .05,  $z = 1.96$

It may be that boys were more aware of discrepancies in the grammar or meaning of a sentence they obtained. Statistical figures comparing the number of miscues of boys and girls which changed syntax and meaning support this statement, and will be discussed later. Another



possibility is that boys may have felt a compulsion to correct omission miscues caused by differences between the speed of eye and voice. Geyer (1968: 44-53) and Morton (1964: 165-80) relate correctional regressions to the temporal eye-voice span, and to the commission of omission-type miscues. Boys may have had more trouble maintaining a balance between input of graphic stimulus and output of oral reading thus producing a greater number of omissions, and the resultant regressions to correct them.

Miscues Corrected by Reading Achievement Groups

Table VII indicates that the Low Average group had a higher per cent of their miscues corrected than did the High Average group. A test of the difference between proportions of miscues corrected by the two groups showed that the L.A. group corrected a significantly higher proportion of its miscues than did the H.A. group.

TABLE VII  
MISCUES CORRECTED BY READING ACHIEVEMENT  
GROUPS AND THEIR SIGNIFICANCE

	L.A. N = 15	H.A. N = 15	Total
No of miscues	423	426	849
No. corrected	95	87	182
Per cent corrected	22.46	20.42	21.44
z - value	3.52 ***		

\* Significance beyond .05, z = 1.96  
\*\* Significance beyond .01, z = 2.58  
\*\*\* Significance beyond .001, z = 3.29





Possible explanations may be offered for these results. First, a predominance of omission miscues by the L.A. Group may have resulted in more corrections. Grade four children who have become accustomed to reading silently often find it difficult to adjust the speed of the eye to the voice in oral reading. Children in this study often regressed several words in order to correct an omission, and it may be that the L.A. Group was more prone to this type of omission. Another explanation for the higher per cent of correction by the L.A. Group might be that their miscues changed syntax and meaning more than did the miscues of the H.A. Group, and that they therefore may have felt more need to correct. It is possible also that the H.A. Group had become more adept at correcting their miscues by silent reading regressions.

A high degree of syntactic and semantic acceptability in children's miscues is indicated by the large per cent of miscues not corrected.

Miscues Corrected by I.Q. Groups

Table VIII shows that the Low I.Q. Group corrected 41 miscues or 22.4 per cent of their miscues, the Medium I.Q. Group corrected 88 miscues or 25.73 per cent of their miscues, and the High I.Q. Group corrected 53 miscues or 15.87 per cent of their miscues.

A proportions tests for significance showed a significant difference between Groups I and II, Groups I and III, and Groups II and III. It will be noted that the High I.Q. Group corrected a significantly



smaller proportion of miscues than either the Low or Medium I.Q. Groups.

TABLE VIII  
MISCUES CORRECTED BY I.Q. GROUPS AND THEIR  
SIGNIFICANCE

	Group I N = 7	Group II N = 13	Group I N = 7	Group III N = 10	Group II N = 13	Group III N = 10	Total N = 30
No. miscues	183	342	183	324	342	324	182
No. corrected	41	88	41	53	88	53	
Per cent corrected	22.40	25.73	22.40	15.87	25.73	15.87	22.44
z - value	5.51***		11.74 ***		17.12***		

- \* Significance beyond .01,  $z = 1.96$   
 \*\* Significance beyond .05,  $z = 2.58$   
 \*\*\* Significance beyond .001,  $z = 3.29$

Perhaps Group III found the reading selection easier to deal with than did Groups I or II. If so, they could shift more of their attention from word recognition to the ideas and meanings in the story. The better they were able to process ideas and think with the language, the closer they would come to syntactic and semantic acceptability. That is, their miscues may have made less difference to the syntax and meaning of the language than did miscues made by the two other I.Q. groups, and therefore prompted fewer corrections.



Statistical figures comparing the proportions of miscues which changed syntax and meaning support this idea, and will be discussed later.

Goodman (1967a: 64) suggests that when the child had few mphw, the material was too easy and the correction strategy was not used to a great extent. In the present study, however, the investigator suspected that when there were a very few (less than four mphw), the child at the grade four level was "surface" reading. That is, he was converting graphic symbols directly to phonemic elements, and was striving for accurate oral reading rather than for meaning. Children in this study with fewer than four mphw corrected quite a high per cent of their miscues (up to 50 per cent). They were apparently more concerned with how the oral reading "sounded" than with its meaning, and probably corrected miscues which did not sound right to them. Perhaps their emphasis in reading, which was on the oral production rather than the meaning, determined their reason for correcting.

#### Miscues Corrected and Comprehension Scores

Correlations were computed between the number of corrections by the groups and their comprehension scores and are presented in Table IX.



TABLE IX

CORRELATIONS BETWEEN NUMBER OF CORRECTIONS  
BY GROUPS AND THEIR COMPREHENSION SCORES

Group	N	No. of Corrections	Mean Comprehension Score	Correlation between Number of Corrections and Comprehension Scores	Significance
Boys	15	96	27.2	0.345	*
Girls	15	86	22.7	0.265	
L.A.	15	95	24.1	0.231	
H.A.	15	87	26.1	0.451	**
I.Q. I	7	41	24.1	0.202	
I.Q. II	13	88	25.0	0.274	
I.Q. III	10	53	25.5	0.459	***
Entire Group	30	182	24.95	0.316	*
* Significance at .05, $r = .306$ ** Significance at .01, $r = .361$ *** Significance at .005, $r = .463$					

Table IX shows that a significant positive relationship exists between number of corrections and comprehension scores in I.Q. Group III, H.A. Group, and Boys. A positive though not significant relationship was recorded in the following groups: I.Q. I, I.Q. II, L.A., and





Girls, Significance at the .05 level of confidence was also recorded for the entire group, showing the relationship between their number of corrections and their comprehension scores.

These figures lend support to the idea that corrections were used by all groups in increase comprehension but were more profitably used by some groups than by others. That is, the corrections made by I.Q. Group III, H.A. Group and Boys were accompanied by a desirable increased comprehension of the story. The coefficient of correlation between the number of miscues corrected and comprehension scores was significant at the .005 level of confidence for Group III, but was not significant for the other I.Q. Groups (Table IX). This would suggest that the level of cognitive development is an important factor in the ability to differentiate between miscues which do or do not make a difference in meaning. It would also suggest a higher level of involvement in the story. Boys in this study also appeared to be using the correction strategy to greater advantage than were girls.

### Regressions

The phenomenon of correction is overtly observed through the behavior of regression. Teachers have in the past discouraged children from making regressions as they read. However, in this study, there was no interference as the children read aloud.

It was possible to consider each regression according to whether it was correctional (to correct any miscue other than an intonational



miscue) or intonational (to correct pitch, stress, or juncture).

Other regressions which were not made for the purpose of correcting a miscue were listed with the intonational regressions as well. Each regression was also tabulated as to whether it consisted of a word or less than a word, or a phrase (two words or more).

Regressions were divided almost equally between correctional and intonational regressions. The children tended to regress just far enough to correct their miscue. If the miscue was at the submorphemic or the word level (e.g. "run" for "rung"), that word alone would be repeated. However, if the miscue was at a phrase level (e.g. ". . . the greatest reward  $\wedge$  a hero can receive"), the child would stop short as he was about to say the word "can" and repeat the phrase "a hero."

Children did not attempt to change many of their intonational miscues by regression. (Either they were not aware that they had, in some cases, ignored punctuation signals, or they corrected the miscues mentally.) This was particularly true when the miscue had made little difference to the syntax and meaning. For example, the child who read, "Duke jumped up and raced down his own stairway $\odot$  First  $\wedge$  he . . . ", with the terminal punctuation following the word "first" instead of "stairway," apparently felt no need to change the response. However, the child who read, "When they left $\odot$  Duke  $\wedge$  went . . . " repeated the word "Duke" before going on. A slight pause before the



repetition may have been for the purpose of regressing to the beginning of the sentence to re-read covertly. Although the investigator suspected that the children often re-read parts of a sentence silently during quick pauses, or during the repetition of a word or phrase, no careful study of this phenomenon was made.

Many of the regressions listed under intonational regressions were made for no clearly discernible reason. They may, however, have been a means of compensating for the difference in speed of oral and silent reading. Geyer's (1968: 47) explanation of regressions as related to short-term memory may be applicable to the children in this study. He suggested that if input proceeded too far ahead of the response system, the scanned elements would be lost from storage before they could be responded to. The child would then be required to make regressive eye movements to scan again the lost elements.

That some of these regressions were related to getting the meaning was indicated by the fact that when a regression was composed of more than one word it was usually a full phrase or clause, or meaningful unit. The one-word regressions may have been a means of gaining time before tackling a difficult phrase ahead. For, example, the word "Duke" was often repeated, in an effort, it seemed to the researcher, to make sense out of the phrase "Duke's sharp senses of sight, smell, and hearing . . . " The possessive may have been an additional point of trouble here.

On the other hand, in at least one case, intonational regressions



did not seem to be connected with the thought-getting process. The child in this case had only eight miscues, half of which she corrected; but she had eleven intonational regressions. Her comprehension score was fourteen, one of the lowest obtained. She read in phrases with good expression and was what would be called "a good oral reader." She was, apparently, very conscious of how oral reading should "sound." Her regressions were probably made in her concentration on the "production" of the oral reading.

Pauses in the oral reading by some of the children suggested to the researcher either that they were re-reading silently, often to correct an omission or other miscue, or they were silently reading ahead, using context to figure something out. One child paused after omitting the word "to" in the following: ". . . took him (to) an animal shelter," and then continued on. His retelling of the story showed that he had understood this part of the story completely. Another child read "carefully" for "cruelly" in: "His new master treated Duke cruelly." Even though there was no perceptible pause the child used the word "cruelly" in retelling the story. Perhaps in this case the child was thinking "cruelly" even as he said "carefully."

It is of interest to note that boys used intonational regressions considerably less than girls. This agrees with Christensen's finding. Boys also used phrase regressions less than girls.





### Summary

About half of the regressions made by children in this study were not for the purpose of correcting. Some possible reasons for these regressions have been suggested. The reasons for corrections, however, were usually immediately obvious, and a comparison between the original response and the corrected response could reveal the child's level of proficiency in using and integrating the cues available to him.

A summary of miscues corrected by pupil-groups, and a comparison of the groups by sex, reading achievement, and I.Q. is contained in Table X and Figure I.

The extent to which each of the groups used the correction strategy can be seen in Figure I. It will be noted that I.Q. Group III corrected a smaller per cent of their miscues than any of the groups while making more miscues than any other group. That the miscues which they did correct were significant ones is supported by the high correlation between their number of corrections and their comprehension scores (Table IX).

Figure I also shows clearly the large percentage of miscues which were not corrected. It has been suggested that some of these may have in fact been silently corrected during pauses or repetitions or that even as the child miscued orally he may have been "thinking" the correct response. Perhaps the child who had worked out meaning-getting



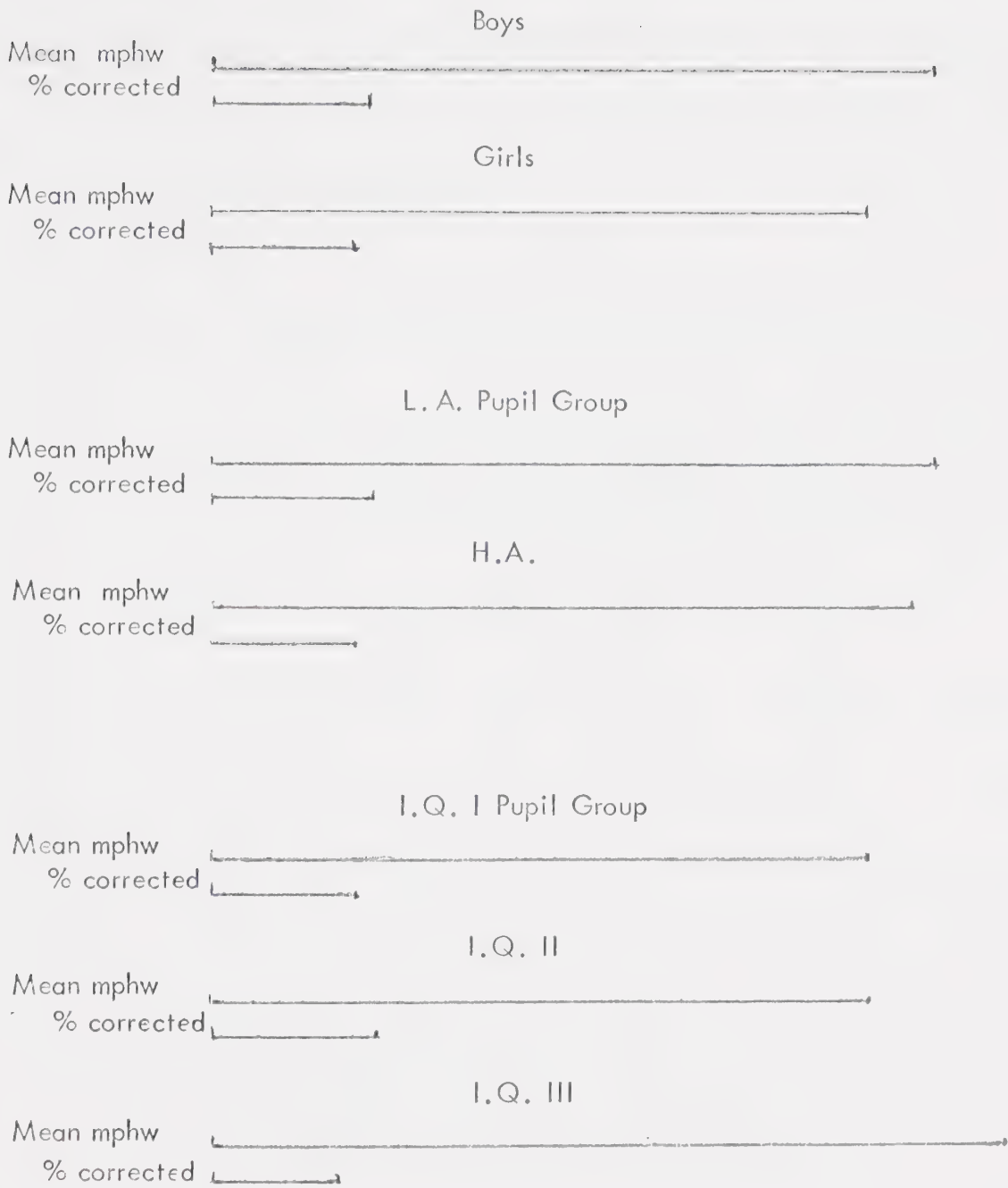


FIGURE I  
PER CENT OF THEIR MISCUES  
CORRECTED BY THE GROUPS



strategies disregarded miscues which made little difference to syntax or meaning. However, a careful study of these phenomena was not undertaken in this study.

TABLE X  
SUMMARY OF MISCUES CORRECTED BY PUPIL GROUPS

Groups	N	No. of Miscues	Mean Mphw	No. Miscues Corrected	Per cent Corrected	z-value
Boys	15	437	6.79	96	21.97	1.89
Girls	15	412	6.40	86	20.87	
L.A.	15	423	6.57	95	22.46	3.51***
H.A.	15	426	6.62	87	20.42	
I.Q. I	7	183	6.09	41	22.40	5.51***
I.Q. II	13	342	6.13	88	25.73	
I.Q. I	7	183	6.09	41	22.40	11.74***
I.Q. III	10	324	7.79	53	15.87	
I.Q. II	13	342	6.13	88	25.73	17.12***
I.Q. III	10	324	7.79	53	15.87	

\* Significance beyond .05,  $z = 1.96$

\*\* Significance beyond .01,  $z = 2.58$

\*\*\* Significance beyond .001,  $z = 3.29$

It will be noted from Table X that boys made more mphw than girls and corrected a greater per cent of their miscues than did the girls. The L.A. Group made slightly fewer mphw than the H.A. Group, but correctly a significantly lesser per cent of their miscues. I.Q. Group I made the least mphw and corrected 22.40 per cent of their miscues.



I.Q. Group II had slightly more mphw than Group I, and the highest per cent of correction. Group III deviated most from the other groups, having the greatest number of miscues but the smallest per cent of miscues corrected.

All children in this study corrected some of their miscues. While no clear pattern of relationship between per cent of corrections and level of reading proficiency emerged, comparison between groups suggested an inverse relationship between number of mphw and per cent of corrections may exist at grade four. It seemed that as the children became more involved in the meaning relationships on phrase and sentence level, they tended to attend less to the mechanics of oral reading.

It was suggested that at grade four, children are able to discriminate between miscues which make a difference in meaning and miscues which do not. The child's talent for correcting miscues which were significant was thought to be the key factor in any consideration of corrections. Although boys found corrections more productive of meaning than girls, children in I.Q. Group III and in the H.A. Group appeared to be most adept in this discrimination technique.

Goodman (1965) has stressed that children often regress to correct as a meaning-getting technique in reading. This idea is given support in the present study, where the relationship between the number of corrections and the comprehension scores of the entire group was sig-





nificant at the .05 level of confidence (Table IX). However, more important information would come from a careful study of the kinds of miscues which the child corrects and those which he does not correct.

#### IV CHILDREN'S MISCUES BY TYPES AND BY LEVELS OF LANGUAGE

This section will deal with the types of miscues made by the children in this study, and the levels of language at which the miscues were made.

##### Miscue Types

Miscue types by per cent are presented in Table XI. The total percentage for each type of miscue for the complete study does not differ greatly from other studies which have established types of errors.

TABLE XI  
PER CENT OF TYPES OF MISCUES

Type of Miscue	Per cent
Substitutions	52.43
Insertions	18.93
Omissions	23.67
Reversals	2.31
Reversals with substitutions, insertions or omissions	.6
Substitutions with omissions or insertions	3.03



Substitutions accounted for the largest per cent of miscue types. Reversals and combinations of miscue types made up approximately 6 per cent of all errors. Omissions and insertions together accounted for about 42 per cent of all miscues. Since many errors in oral reading are due to a lack of pre-reading, the number of miscues by children in this study would undoubtedly have been fewer if pre-reading had been allowed. The lack of prompting by the researcher may also have resulted in a greater number of miscues. However, the purpose in this study was to discover what children do on their own with reading material when they meet it for the first time. Children in this study sometimes substituted or mispronounced when they met an unfamiliar word but they rarely omitted. Apparently, their word attack skills and knowledge of language were sufficiently developed to attempt the words in their reading material. Had the material been at a frustration level, omission of difficult words might have shown up. Most of the omissions in this study were known words (e.g. function words). The fact that the children were obliged to read orally as they received the communication from the printed page may account for a large number of omissions and insertions at this level of reading proficiency. At grade four, where children are accustomed to doing most of their reading silently, the mind processes information at a higher speed than the voice can use to communicate the same ideas to listeners. This discrepancy between the rate of silent and oral reading could lead to an inexact yet often acceptable translation of the written word to an oral reproduction of it.



The high per cent of omissions tends to agree with the Schale (1964) study, in which omissions were highest from grades four to six and with the Goodman study (1967a: 77), in which omissions miscues amounted to 31 per cent of total miscues. The higher per cent of insertion type miscues in the present study as compared with Goodman's 8 per cent might be due to the material used in this study and to the higher level of reading proficiency of the children. Goodman (1967a: 257) hypothesized that the per cent of insertion-type miscues increases as a child becomes more proficient in reading. Smith (1954) found that when children were absorbed in reading challenging material, they made more omissions and insertions. The story material in this study was interesting in content, and sufficiently challenging in both vocabulary and sentence structure so that the children were not always able to predict the next word or the next phrase. Schale reported insertions abundant only in material at grade level and one level below. It is possible that material at a frustration level would not have produced such a large per cent of insertion-type miscues. It is likely, too, that insertion and omission type miscues increase as children learn to process larger sequences of language at a time. In fact, to make meaningful insertions, the child must be dealing with the language at phrase or sentence level.

The per cent of miscue types for sex groups, reading achievement groups, and I.Q. groups was tabulated. Due to the small number of miscues in the last three category-types, the difference between



proportions in these categories was not computed statistically.

### Per cent of Miscue Types for Sex Groups

Table XII shows that 50.6 per cent of total miscues made by boys and 54.28 per cent of total miscues made by were substitutions.

TABLE XII  
DIFFERENCE IN PROPORTIONS OF MISCUE TYPES  
BY SEX GROUPS

Type of Miscue	Boys	Girls	z - value
1. Substitutions	50.6	54.28	5.21*
2. Insertion	17.59	20.29	4.87*
3. Omission	25.30	22.00	5.49*
4. Reversal	1.45	1.22	
5. Reversal with i, 2, 3.	1.20	0.0	
6. Substitution with 2, 3.	3.86	2.2	

\* Significance beyond .001,  $z = 3.29$

The results of a test of differences between proportions showed that girls had a significantly higher proportion of substitutions than boys; girls had a significantly higher proportion of insertions as well. Boys had a significantly higher proportion of omissions than girls.

Perhaps a certain facility with language attributed in several studies (Stroud and Lindquist; Bear) to girls is required to insert meaning-





ful words or phrases. Boys' comparative lack of facility in oral language and their concern with getting the meaning as quickly as possible (particularly in an adventure story) may account for their omissions of articles, auxiliaries, and other "little words" which give precision to meaning but are often not necessary to follow the action of the story.

It was suggested in Section III in this chapter that a lack of balance between input and output may have caused omission-type miscues. Boys exceeded girls in their per cent of miscues corrected (Table VI) as well as in their per cent of omissions-type miscues (Table XII). Perhaps a difference in eye-voice span, as suggested by Morton is an explanation for some omissions and their subsequent correction. Boys may have more trouble than girls coordinating the eye and the voice.

In the case of insertions, some of the inserted words seemed to have been said before the full phrase had been perceived (e.g. "top <sup>of the</sup> rung of the ladder"). At times this happened when the phrase was divided at the end of a line (e.g. "and climbed <sup>down</sup> the rickety ladder") where the words "the rickety ladder" were on the following line of print. In other cases the response had much the same meaning as the stimulus, e.g. "that he <sup>had</sup> deserved."

The percentage for each type of miscue for the boys and girls, as shown in Table XII, follows the pattern reported by the Christenson study. The fact that boys had more omissions and fewer insertions than girls may indicate that the reading material presented more difficulty for the



girls than the boys. Christenson found that omissions and repetitions decreased while insertions and substitutions increased as the reading level of material increased. On the other hand, the difference by sex in miscue pattern may be indicative of a different emphasis in reading. Boys may be more intent upon meaning and girls may be more concerned with producing accurate oral reading. Other evidence that boys and girls do differ in the way they approach the oral reading task is presented in this chapter.

#### Per Cent of Miscue Types for Achievement Groups

Although the L.A. and H.A. Groups in this study were within a narrow range of average achievement in reading, their per cents of miscue types were nevertheless computed in an effort to discover differences not distinguished by the reading achievement test. Table XIII shows that insertions comprise 16.87 per cent of the miscues made by L.A. Group and 20.96 per cent of the miscues made by the H.A. Group. Differences between proportions of miscue types were also computed.

The difference in the proportions of substitutions miscues of the High Average and Low Average Achievement Groups approached the level of significance. The H.A. Group had a significantly higher proportion of insertion-type miscues than did the L.A. Group. On the other hand, the L.A. Group had a significantly greater proportion of omission-type miscues than did the H.A. Group. This would bear out the idea put forward by Schale that children at the higher achievement level



TABLE XIII  
DIFFERENCE IN PROPORTIONS OF MISCUE TYPES BY ACHIEVEMENT  
GROUPS

Miscue Type	L.A.	H.A.	z - value
1. Substitution	53.05	51.81	1.74
2. Insertion	16.87	20.96	7.33***
3. Omission	26.16	21.20	8.25***
4. Reversal	.73	1.93	
5. Reversal with 1, 2, 3.	.24	.96	
6. Substitution with 2, 3.	2.93	3.13	
* Significance beyond .05, z = 1.96			
** Significance beyond .01, z = 2.58			
*** Significance beyond .001, z = 3.29			

who can handle reading material more easily find it easier to make insertions as they read.

However, the fact that the L.A. Group had more omissions and fewer insertions than the H.A. Group may be due to the somewhat imbalanced sex composition of the groups. (See Table II). If miscue patterns can be explained by difference in emphasis in reading between the sexes, as previously suggested, then the miscue patterns in the Achievement Groups may also be influenced by this factor. That is, the excess number of boys over girls in the L.A. Group may be responsible



for the larger number of omission miscues made by that group. Conversely, the excess number of girls over boys in the H.A. Group may be responsible for the larger number of insertion miscues made by that group.

#### Per Cent of Miscue Types for I.Q. Groups

The per cent of miscue types and their significance was computed for I.Q. Groups. Table XIV shows the difference between Groups I and II, Groups I and III, and Groups II and III. As indicated previously, Group I is the Low I.Q. Group, Group II the Medium I.Q. Group, and Group III the High I.Q. Group.

Table XIV indicates that Group II had a significantly higher proportion of substitution miscues than either Group I or Group III. The difference between the proportions of Group I and Group III substitution miscues was not significant.

Groups I and III had significantly higher proportions of insertion miscues than did Group II. There was no significant difference between the proportions of insertion-type miscues in Groups I and III.

Groups I and III had significantly higher proportions of omissions than Group II. There was no significant difference between Groups I and III in the proportion of omission-type miscues. It will be noted that Group II had the smallest proportion of both omissions and insertions and the largest proportion of substitutions. However, whether or not these miscues made a difference in meaning or whether they were corrected is of more significance than the proportion of miscue types categorized.





TABLE XIV  
DIFFERENCE IN PROPORTIONS OF MISCUE TYPES BY I.Q. GROUPS

Miscue Type	Group I		Group II		Group III		Group II		Group III		z-value
1. Substitution	50.28	54.77	6.36***		50.28	51.24	54.77	51.24	54.77	51.24	5.00***
2. Insertion	19.77	18.15	2.92**		19.77	19.25	18.15	19.25	18.15	19.25	1.99*
3. Omission	24.86	21.23	6.10***		24.86	25.46	21.23	25.46	21.23	25.46	7.07***
4. Reversal	1.69	1.23			1.69	1.24	1.23	1.24	1.23	1.24	
5. Reversal with 1, 2, or 3.	1.13	.3			1.13	.66	.3	.66			
6. Substitution with 2 or 3	2.26	4.30			2.26	2.17	4.30	2.17	4.30	2.17	

\* Significance beyond .05 level, z = 1.96  
 \*\* Significance beyond .01 level, z = 2.58  
 \*\*\* Significance beyond .001 level, z = 3.29



Although reversals were a small percentage of the total miscues, it may be noted that boys produced approximately twice as many reversals as girls, the H.A. Achievement Group twice as many as the L.A. Group, and I.Q. Group I twice as many as either Group II or III. Only two children made more than one reversal miscue. One girl reversed "K-2" and "opened his jaws wide" while one boy reversed the words "feet dangling" and "moved slowly." Another phrase reversed by two children was "third floor porch." The word "saw" was read "was" by two children. A further discussion of these and other miscues will be found in Section V.

In summary, insertions were significantly higher proportionately with girls rather than boys, H.A. rather than L.A., and I.Q. Groups I and III rather than II.

Omissions were significantly higher proportionally with boys rather than girls, L.A. rather than H.A. and I.Q. Groups I and III rather than II.

Substitutions were significantly higher proportionately with girls rather than boys, and with I.Q. Group II rather than I or III.

Miscue patterns varied by sex, reading achievement, and I.Q. Differences were probably the result of different strategies children use. Patterns of miscues are important only as they influence reading comprehension. In this study, the categorization of miscues according to type depended upon the level of language at which the miscue



was made.

### Miscues at Different Levels of Language

Categorization was at the free morpheme (word) level for over 60 per cent of the total miscues made in this study. Table XV shows that the per cent of miscues classified at sub-morpheme and bound morpheme (less than a word) levels was slightly greater than the per cent of miscues classified at phrase and sentence (more than a word) levels.

TABLE XV  
MISCUES MADE AT DIFFERENT LEVELS OF LANGUAGE

Miscue	Per cent
Sub-morpheme	14.34
Bound morpheme	6.57
Free morpheme	60.69
Phrase	11.35
Sentence	7.05

As Table XV indicates, the children as a group had the greatest number of miscues at the free morpheme or word level of language. However, almost 40 per cent of the miscues were at other than the word level. That is, the children were paying attention to graphic and phonological units smaller than a word and larger than a word in two-



fifths of the miscues made. This figure would have been still larger except that miscues which could have been placed at more than one level were arbitrarily placed on the free morpheme level. It is interesting to note that the per cent of the miscues categorized at "less than a word" level (sub-morpheme and bound morpheme) is only slightly greater than the per cent of miscues categorized at "more than a word" level (phrase and sentence).

This indicates that the children are attempting to integrate cues from all levels of the language. Even as they reach outward to take in phrases, clauses, and sentences, they are also becoming more precise at the sub-morpheme level. The children at grade four level are gradually learning to deal perceptually with larger units of language which express complex ideas of number, time, and relationship. As their cognition develops, they will progress in their ability to manipulate mentally the abstract ideas and complex meaning inherent in the structure of the language. It may be possible to infer from the detailed analysis of reading miscues certain steps in the order of development in this very gradual process.

The per cent of miscues at the different levels of language for sex groups, reading achievement groups, and I.Q. groups was computed.

#### Miscues by Sex Groups at Different Levels of Language

Table XVI shows the per cent of miscues made by boys and girls





at different levels of language, and the difference in proportions at each level.

TABLE XVI  
DIFFERENCE IN PROPORTIONS OF MISCUES BY SEX GROUPS AT  
DIFFERENT LEVELS OF LANGUAGE

Level	Boys	Girls	z-value
Sub-morpheme	10.98	18.04	14.17***
Bound morpheme	6.54	6.58	0.11
Free morpheme	63.55	57.56	8.67***
Phrase	12.38	10.24	4.78***
Sentence	6.54	7.56	2.82**

- \* Significance beyond .05,  $z = 1.96$
- \*\* Significance beyond .01,  $z = 2.58$
- \*\*\* Significance beyond .001,  $z = 3.29$

Table XVI shows that with the exception of the bound morpheme level, significant difference between boys and girls exist at all levels of language. While the girls had a significantly greater proportion of miscues at the sub-morphemic level and the sentence level, the boys had a significantly greater proportion at the free morpheme and phrase levels. It appears that the boys are using all levels of language to arrive at meaning. This may suggest a higher level of integration of the different levels of language. That is, the boys may be better able to



keep a balance between the graphic-phonemic and the syntactic-semantic cue systems.

The girls appear to be concentrating upon smaller-than-word sequences, or graphic-phonemic associations, perhaps to the detriment of meaning. They do, however, seem to have progressed to dealing with language at the sentence level to a greater degree than the boys. It was noted that girls in this study used more intonational regressions and phrase regressions than did the boys which may suggest an extra sensitivity to or dependence on the sound of language on the part of the girls. They may be more aware of the intonation pattern of language and more dependent upon it for meaning than boys are.

Some research has shown that, particularly in the earlier grades, girls are more advanced than boys in language and reading (Bear; Wilson et al) . Perhaps their facility with language and their emphasis upon phoneme-grapheme relationships are strong points for them in grasping literal meanings and in producing more accurate oral reading. However, they may be less successful than boys when required to go beyond the literal meaning. Studies (Robinson: 63) which have found that girls' performances in oral reading tests are superior to those of boys have based their findings heavily on the number of "errors" and rather lightly on the meaning obtained from the passage. Perhaps a more adequate measure of comprehension than is generally used with oral reading tests might give a different picture of differences between boys and girls.



Other studies have suggested that boys actually surpass girls by the time they reach High School. A possible explanation may be that cultural expectations for boys allow them to have a greater variety of sense experiences from which more precise concepts develop, while girls are expected to be more verbal. Piaget stresses that logical thought processes originate through the senses; language is a symbolic representation of these sense experiences. There is evidence in the present study that at grade four level, boys are more adept at thinking with language, although girls read more fluently. It has been suggested that the boys may have been more intent upon meaning and may have developed meaning-getting strategies such as discriminative correcting of miscues, which made a difference in their comprehension as they read. (See Table IX).

#### Miscues by Reading Achievement Groups at Different Levels of Language

The per cent of miscues made at the different levels of language by the L.A. and H.A. Reading Achievement Groups, and the difference in proportions at each level is tabulated in Table XVII.

The L.A. and H.A. achievement groups differed widely on levels of language miscued. (Table XVII.) The L.A. group miscued on a significantly higher proportion of sub-morpheme and bound morpheme elements than did the H.A. group, but at a significantly lower proportion at all the other levels of language. The H.A. Group is apparently operating on the phrase and sentence levels much more than is the L.A.



Group, while the L.A. Group is paying closer attention to "parts" of words. Perhaps this story presented problems in word recognition to a greater degree for the L.A. than the H.A. Group. The children in the L.A. Group may have been forced to over-use the graphic-phonemic cues, and therefore may have lost some of the facility with which the H.A. Group appeared to deal with larger language units.

TABLE XVII  
DIFFERENCE IN PROPORTIONS OF MISCUES BY ACHIEVEMENT  
GROUPS AT DIFFERENT LEVELS OF LANGUAGE

Level	L.A.	H.A.	z-value
Sub-morpheme	17.10	11.54	11.22***
Bound morpheme	7.83	5.28	6.25***
Free morpheme	59.14	62.26	4.52***
Phrase	10.45	12.26	4.03***
Sentence	5.46	8.65	8.81***

\* Significance beyond .05,  $z = 1.96$   
 \*\* Significance beyond .01,  $z = 2.58$   
 \*\*\* Significance beyond .001,  $z = 3.29$

It may be noted that three boys and one girl whose I.Q. scores were the highest of the entire group were part of the L.A. Reading Achievement Group as well. These children swelled the number of bound morpheme mis cues in both the L.A. Groups and in I.Q. Group III. It may be that I.Q. is more closely related to the commission





of bound morpheme miscues than is reading achievement (as defined in this study).

#### Miscues by I.Q. Groups at Different Levels of Language

Difference in proportions of miscues made by I.Q. groups at the different levels of language was computed as shown in Table XVIII. A z-value was computed and the significance reported at each level for I.Q. Groups I and II, I and III, and II and III.

Table XVIII shows that at the sub-morphemic level, Group I had a significantly greater proportion of miscues than Group II or Group III. Group II had a significantly greater proportion than Group III. The per cent of sub-morphemic level miscues increased as I.Q. decreased. The children with lower I.Q. scores were concentrating more upon grapho-phonemic relationship within words.

At the bound morpheme level, Group III had a significantly greater proportion of miscues than Group I or Group II. Group II had a significantly greater proportion than Group I. The number of bound morpheme level miscues increased with increase in I.Q..

There was no significant difference between proportions at the free morpheme level.

At the phrase level, Group I had a significantly higher proportion of miscues than Group III; Group II had a significantly higher proportion of miscues than Group III, and the difference between the proportions of miscues made by Groups I and II was not significant.



TABLE XVIII

DIFFERENCE IN PROPORTIONS OF MISCUES BY I.Q. GROUPS AT DIFFERENT LEVELS OF LANGUAGE

	Group I	Group II	z-value	Group I	Group III	z-value	Group II	Group III	z-value
Sub-morpheme	16.85	14.96	3.65***	16.85	13.98	5.62***	14.96	13.98	1.97*
Bound morpheme	3.93	4.69	2.65**	3.93	9.42	15.55***	4.69	9.42	13.06***
Free morpheme	60.11	59.82	0.42	60.11	59.88	0.33	59.82	59.88	0.09
Phrase	14.04	13.49	1.13	14.04	8.81	11.63***	13.49	8.81	10.51***
Sentence	5.06	7.04	5.88***	5.06	7.90	8.16***	7.04	7.90	2.31*

\* Significance beyond .05,  $z = 1.96$ \*\* Significance beyond .01,  $z = 2.58$ \*\*\* Significance beyond .001,  $z = 3.29$



Significant differences were found between I.Q. groups at the sentence level as well. Group III had a higher proportion of sentence level miscues than Group I and Group II. Group II had a higher proportion than Group I. That is, the higher the mental ability of the child, the greater proportion of his miscues were on a sentence level.

Many sentence level miscues were related to the ignoring of punctuation and a change in intonation pattern. Group III's greater number of sentence level miscues is indicative of their attempts to handle and to predict larger sequences of language as they searched for meaning. When their predictions upset the intonation pattern they sometimes regressed to correct, but more often changed other words or sequences of words in an attempt to make the sentence conform to the constraints of syntax and meaning. It appeared that in their urgency to obtain meaning they overlooked punctuation, which is one of the signals of meaning in the written language.

Children with lower I.Q. scores were attempting to deal with the reading material at a sentence level to a lesser extent.

The fact that at the bound morpheme level Group III had more than twice as many miscues than either of the other groups, may indicate that Group III was more aware of the ideas of time and number in the story. Miscues at the bound morpheme level are often inflections, which signal time and number. The child at grade four level, who is reaching toward abstract concepts, may now be able to begin to fill time and



number words with meaning as he reads. That the high I.Q. group was the group concerned should give greater credence to this suggestion. Children of slightly lower I.Q. may not yet have experienced this phenomenon. Added to this is the evidence of the growing ability of Group III to deal with language on the sentence level. That is, while expanding horizontally to take in sentence units, they are at the same time reaching toward new dimensions in depth of meaning. Because of this ability to use larger sequences of language in deriving meaning from the printed page, they may be more aware of subtleties of meaning in the story as a whole. The mean comprehension score earned by Group III (Table IX) tends to lend support to the above discussion.

#### Graphic and Phonemic Miscues

Miscues categorized in the graphic and phonemic categories provided further insight into the levels of cues which the children were using, and how they might be integrating these cues as they read. Each miscue was considered separately and could be categorized in either the graphic or the phonemic categories, or both, according to the context in which it occurred. In each case the degree of similarity both graphically and phonemically between the observed response and the expected response was determined. Since in reading the graphic symbols in some way cue the responses made, the graphic category is broad enough to encompass most miscues. Phonemic miscues are fewer in number because the miscue does not always approximate the expected response phonemically.





For example, the word "carefully" substituted for the word "cruelly" was not listed in the phonemic category. It was assumed that this particular response was made because graphically it resembles the expected response, syntactically it has the same function, and semantically it is acceptable in the part of the sentence preceding the miscue: "His new master treated Duke carefully cruelly and finally turned him into the street."

It can be seen that fewer phonemic miscues will occur when children emphasize syntactic-semantic (context) cues more than grapho-phonemic cues. That is, the child learning to use larger sequences of language as he reads and concentrating less upon phonic relationships will have fewer phonemic miscues. It is therefore not surprising that graphic miscues outnumber phonemic miscues in this study.

Percentage of the total number of graphic and phonemic miscues were calculated for each subcategory. The per cent of miscues in each of the graphic sub-categories is tabulated below.

TABLE XIX  
GRAPHIC MISCUES BY PER CENT



Sub-categories	Per Cent
R and S differ by single grapheme	33.6
Similar spelling	28.6
General configuration corresponds	24.23
R is a sounded non-word	12.75
Splitting syllables	0.
Allographs	.76
Homographs	0.





Almost all "word" and "less than a word" level miscues were coded in the graphic category. Sounded non-words accounted for 12.75 per cent of the entire number of graphic miscues, as shown in Table XIX. It is perhaps worth noting that one word, "corps," was responsible for most of the miscues in this sub-category. Miscued responses for "K-9" (canine) were placed in the allograph sub-category. One child read "K to 9" and two read "9 - K"; some placed the stress on the second rather than the first syllable.

The miscues showed varying degrees of graphic similarity (e.g. "not" for "no", "for" for "from" and "when" for "with"). Sometimes the miscue made little difference in meaning (e.g. "in search for a pet" for "in search of a pet"). At other times the meaning was changed (e.g. "he lay on the sun" for "he lay in the sun"). One child, whose comprehension was rated at nineteen, miscued on many common "little" words. Apparently he was experiencing a great deal of difficulty in discriminating between them or in predicting language sequences as he read. Out of thirty-two miscues, he corrected only five. A hurried, breathless type of reading suggested an emotional problem, perhaps related to his rather apologetic statement that he wasn't a very good reader. Another child whose comprehension was rated at nineteen also, often substituted words with a different function, which changed syntax and usually made no sense in the context (e.g. "now" for "not" "too" for "top", "actor" for "acts"). She corrected four out of twenty-seven miscues.



The better readers tended to leave out small words when they made no difference in meaning, and to be more precise in their reading when they did make a difference in meaning. One child who rated a comprehension score of twenty-eight points omitted many articles (e.g. as  sentry dog; from  surprise attack). However, he seldom miscued on phrase or clause markers which were essential to meaning. In the few instances where he did, he corrected the miscue. Out of thirty miscues eight were corrected, but those he corrected made a difference in meaning. This child, among other better readers, was selective in what he omitted and what he corrected.

In most cases, the categories of the taxonomy accommodated the miscues made by the grade four children. However, there were some cases where it did not. The child with an unexpected sentence terminal intonation such as "Duke jumped up and raced down his own stairway  → First  . . . ." has made a miscue in the intonation category in his response. However, the child has also disregarded graphic cues (punctuation and capitalization) which define the sentence as a graphic unit and which partially signal the intonation pattern. While the taxonomy accommodates intonation miscues, there is no provision in the graphic category for punctuation signals ignored by the child. Terminal punctuation of phrase or sentence was ignored sixty-eight times in this study, which suggests that it is an important phenomenon worthy of consideration in the taxonomy.

An additional phenomenon which lacked a taxonomy category for its recording was noted. The position of certain kinds of words at the end



of a line of print appeared to contribute to the commission of eighteen miscues. For example from the words "As guard dogs," with "dogs" placed on the following line, one child predicted the word "they" instead of "dogs." The omission of the word "dog" in the phrase "a big German Shepherd dog," where the word "dog" was on the following line, is another example. Again the word "friendship," divided at the end of a line, resulted in the substitution of a word "friendly" as the most likely prediction. The most common example in this study was the substitution of "stairs" for "stairway," where the stimulus "stairway" was divided at the end of a line, and was responded to as "stairs" by several children. Although this type of phenomenon was noted eighteen times in this study, there was no provision in the taxonomy for recording it.

The investigator felt a need for a new category, or sub-categories in the graphic category which would consider the ignoring of punctuation signals and the position of words on the page as factors in the making of miscues. These ideas were not, however, implemented in the present study.

The percentage of phonemic miscues by sub-categories, is shown in Table XX.

TABLE XX  
PHONEMIC MISCUES BY PER CENT

Sub-categories	Per Cent
R + S differ by a vowel phoneme	22.52
R + S differ by a consonant phoneme	31.54
Homophones	1.66
Morphophonemic variant and allomorph	0.
Full vowel for schwa	0.
R + S differ by two-phoneme sequence	44.28





Table XX shows that almost one-half the phonemic miscues exhibit a two-phoneme sequence of difference between response and stimulus. These sequences were often syllables and inflections (e.g. "returned" for "turned" or "open" for "opening"). While phonemic miscues were considered a distinct sign of progress at grade one, a large number of phonemic miscues at grade four may reveal an overdependence upon the graphic-phonemic cue system.

A high degree of graphic-phonemic integration which was determined by comparing the number of miscues listed in the graphic and phonemic categories, usually suggested that the child had strong phonic generalizations. For example, in the substitution of "ring" for "rung", the observed response and expected response differ by one vowel phoneme and one vowel grapheme. Correlations between graphic and phonemic miscues could therefore indicate how well a group of children was able to recode the graphic elements into their phonemic equivalents.

Correlations were computed between the graphic and phonemic miscues made by each pupil and tabulated in Table XXI.

Table XXI confirms that graphic miscues outnumbered phonemic miscues.

Out of 437 miscues totaled for boys, 237 or 54.23 per cent of them were listed on the graphic category. Out of these 437 miscues, 145 or 33.18 per cent were listed in the phonemic category. The correlation between boys' graphic and phonemic miscues was calculated at 0.8303, with a significance level of .005.



TABLE XXI

## CORRELATIONS BETWEEN GRAPHIC AND PHONEMIC MISCUES BY GROUPS

Group	N	No. of Miscues	No of Graphic Miscues	Per Cent of Graphic Miscues	No. of Phonemic Miscues	Per Cent of Phonemic Miscues	Correlations between Number of Graphic and Phonemic Miscues
Boys	15	437	237	54.23	145	33.18	0.830 ***
Girls	15	412	198	48.06	153	37.14	0.667 ***
L.A.	15	423	220	52.00	153	36.17	0.579 ***
H.A.	15	426	215	50.47	145	34.04	0.864 ***
I.Q. I	7	183	87	47.54	61	33.33	0.647 ***
I.Q. II	13	342	166	48.54	118	30.58	0.504 ***
I.Q. III	10	334	182	54.49	119	34.50	0.696 ***
Entire Group	30	849	435	51.02	298	35.1	0.720 ***

\* Significance beyond .05,  $r = 3.06$ \*\* Significance beyond .01,  $r = 4.23$ \*\*\* Significance beyond .005  $r = 4.63$



It has been suggested from the analysis of data in this study that the girls were more dependent upon the sound of language than boys were since they were using phonic cues and intonational regressions to a greater extent. A comparison of the number of graphic and phonemic miscues tabulated for boys and girls seems to support this idea. Table XXI shows that boys had a higher per cent of graphic miscues, while girls had a higher per cent of phonemic miscues.

Boys also miscued more at word level than did girls (Table XVI). Boys may have used word form patterns more than did girls (e.g. the substitution of "even" for "ever" is a graphic miscue rather than a phonemic miscue because the two words are more closely related in their graphic spelling than they are in the sound of the words). Goins (1958) suggested that boys may learn better from the whole word method or may need more help in generalizing so as to use phonic correspondences. It was suggested that the girls in this study over-used cues within words. Boys, on the other hand, were better able to integrate cues at all levels to arrive at meaning. Table XXI shows that the correlation between graphic and phonemic miscues was considerably higher for boys than for girls. Perhaps boys were able to more closely approximate the stimuli because they were more able to group words into meaningful phrases. Table XVI shows that boys more than girls were operating on the phrase level as they read. This would facilitate the use of context and allow the fullest use of the meaning cues in the reading material. Boys in this



study had more reading miscues and higher comprehension scores than girls. Girls may have been less successful in their comprehension of the story because they were too concerned with cues within words. In this connection, Elder found that the whole word method of learning was more productive of comprehension, and the more analytical method was more productive of exact oral reading. However, it may be that the child's emphasis upon meaning or emphasis upon accuracy of production (the "sound" of the oral reading) may depend not only on the training received, but on the preferred mode of learning of the child himself.

Table XXI shows that the H.A. Group had much higher correlation between graphic and phonemic miscues than had the L.A. Group. Perhaps the H.A. Group, with the higher degree of graphic-phonemic integration, could attend to more meaningful language sequences at the phrase and sentence level. (See Table XVII.) Goodman (1968: 21) points out that cue systems within words are used primarily for recoding. The L.A. Group, who had a larger per cent of miscues at sub-morphemic level, may have been overusing graphic-phonemic cues at the expense of meaning. Their low correlation as shown in Table XXI suggests that they may have some problem in word recognition and word analysis skills. The coefficient of correlation for graphic and phonemic miscues was calculated at 0.58 for the L.A. Group and 0.86 for the H.A. Group perhaps indicating stronger phonic generalizations for the





H.A. Group. Of the I.Q. groups, Group III had the highest per cent of graphic miscues and the highest per cent of phonemic miscues. I.Q. Group III also had a higher correlation between graphic and phonemic miscues than either Group I or Group II. Children in Group III showed signs of paying extra attention to graphic symbols. Not only did they have a higher per cent of graphic miscues than children in Group I or Group II, but they also had a significantly higher proportion of bound morpheme miscues than the other groups. (See Table XVIII.) Bound morphemes (e.g. "ed", "s" or "ing" endings) are graphically defined entities, appearing as they do in the same position following a root word. Perhaps children of high intelligence have learned to make better use of structural cues to meaning.

For the entire group of thirty children the correlation between graphic and phonemic miscues was 0.7205. Goodman (1967a : 145) reported the coefficient of correlation between graphic and phonemic miscues of Average Readers in grade one to be .87. No doubt the reading materials used in the present study presented a much wider scope for miscues, both in vocabulary level and sentence patterns. As children proceed from word-by-word reading to reading of longer meaningful units such as phrases and sentences, the miscues tend to be function words more than nouns or verbs. (over 50 per cent of miscues in this study were function words.) Unlike substitutions for nouns or verbs, where the expected response and observed response



are usually similar graphically and/or phonemically, the substituted function word may not resemble the stimulus either graphically or phonemically (e.g. "a" for "the"). Of course they are similar in function, which is the reason the child substituted the one for the other. The substitution or omission of words which make little difference in meaning may be viewed as a progressive step in the development of reading proficiency, for at grade four it may demonstrate the child's ability to deal with larger and larger sequences of language at a time.

The categorization of miscues revealed certain differences in reading phenomena between children in grade four of average reading achievement, and children at earlier stages of reading.

Miscues in some of the categories (e.g. allologs, stimulus in periphery, and habitual association) were almost non-existent for children in this test sample, although Goodman (1967a) reported their incidence with beginning readers.

There were no miscues in the allolog category, which is concerned with confusion between short forms and contractions of words with the full forms of words. Goodman (1967: 286) suggested that children who had experience with a limited basic reading vocabulary tended to respond with contractions once these had been introduced in reading. It may be that the reading selection used for the current study presented few opportunities for this type of miscue. On the other hand, allolog



miscues may have been a benign type of phenomenon which disappeared in the early stages of reading development.

The possibility that the miscued response was in the preceptual field of the child was more likely with the limited and repetitive vocabulary used in early reading material. As the child's reading vocabulary increases and his experience with new words and sequences of words become broader, he is probably less likely to miscue due to something in the periphery of the stimulus field. If he has not by grade four trained himself to proceed in a linear fashion as he reads, he may have a particular problem which requires remedial attention. Thus reading phenomena which is normal and natural at one stage becomes a cause for concern at another. It is therefore important for teachers to know what is typical at each stage of development.

Habitual association miscues (e.g. "is" for "said"), as described by Goodman (1967a: 109), may be associated with an early stage of reading development. As the child learns to deal with larger sequences of language at a time, and as he develops skills and strategies for the identification of words they tend to disappear.

Finally, in the use of the taxonomy it was found that children did not substitute antonyms when they miscued in the semantic category, nor were there any miscues involving morphophonemic variant and allomorph or substitution of full vowel for schwa in the phonemic category. Dialect was not involved although a few speech idiosyncracies



were categorized under dialect.

### Syntax and Meaning

Some miscues did not change syntax; others did not change meaning. Sometimes a miscue changed neither the syntax nor the meaning.

It is assumed that miscues which do not change syntax indicate the child's ability to deal with syntactic relationships in the reading material, while miscues which do not change meaning show his ability to handle meaning relationships. The more able he is to make use of these context clues to meaning, the better will be his reading comprehension.

The difference in proportions of miscues which did not change syntax, and miscues which did not change meaning was calculated by groups as shown in Table XXII. To discover differences between groups in their ability to integrate syntactic and semantic cues, coefficients of correlation were also computed for miscues which did not involve changes in syntax and miscues which did not involve changes in meaning.

Table XXII shows that while 57 per cent of the miscues of the entire group did not change syntax, 64 per cent did not change meaning. In Goodman's first grade study (1967a: 167), 46 per cent of miscues of Average Readers were unchanged in syntax and 38 per cent in meaning. She reported that "all the children made fewer changes in syntax than of meaning when a miscue occurred. "While children in the present study were able to deal with both syntactic and semantic relationships





more successfully than the children in the Goodman study, and therefore more closely approximate the meaning, they also made fewer changes in meaning than of syntax when a miscue occurred. This may indicate a shift of emphasis from syntactic to semantic cues. Perhaps the syntax has become so well learned that it is now almost automatic, and more attention can be given to meaning. That is, as the child reads, he uses syntax in a flexible way to express the meaning he is gathering from the page. He is sometimes able to change the syntax of a phrase, clause or sentence without changing the meaning. Later he will learn to better integrate the use of syntactic and semantic clues. That the better reading groups (H.A., Boys, and I.Q. III) are already more successful in this balancing of cues is evidenced by their higher correlation coefficients between miscues which did not change syntax and miscues which did not change meaning (Table XXII).

It was found that I.Q. Group III had significantly smaller proportions of miscues which changed syntax and meaning than either Group I or Group II (See Table XXII). That is, their miscues were to use Goodman's term, "better" than those of Group I or II, since they were more acceptable syntactically and semantically. The proportions of miscues which changed syntax and meaning was significantly less for the H.A. Group than for the L.A. Group. Perhaps since miscues made by the H.A. Group and I.Q. Group changed meaning and syntax less, these groups may have felt less need to correct their miscues. I.Q.



TABLE XXII

DIFFERENCES IN PROPORTIONS OF MISCUES WHICH DID NOT CHANGE SYNTAX AND MISCUES WHICH DID NOT CHANGE MEANING, AND CORRELATIONS BETWEEN NUMBER OF MISCUES WHICH DID NOT CHANGE SYNTAX AND THE NUMBER OF MISCUES WHICH DID NOT CHANGE MEANING.

Pupil - Group	Per cent of Miscues Which Did Not Change Syntax	z-value, p	Per Cent of Miscues Which did not Change Meaning	z-value, p	Correlations Between Number of Miscues Which Did Not Change Syntax and Number of Miscues Which Did Not Change Meaning
Boys	58.78	5.38 .001	64.18	2.37 .05	0.671 ***
Girls	55.01		65.78		0.601 ***
L.A.	54.61	6.66 .001	64.75	0.64 N.S.	0.622 ***
H.A.	59.41		65.18		0.712 ***
I.Q. I	56.25	0.66 N.S.	63.25	2.57 .05	0.640 ***
I.Q. II	55.79		61.47		0.650 ***



TABLE XXII      con't

Pupil - Group	Per Cent of Miscues Which Did Not Change Syntax	Per Cent of Miscues Which Did Not Change Meaning	z-value p	z-value	p	Correlations Between Number of Miscues Which Did Not Change Syntax and Number of Miscues Which Did Not Change Meaning
I.Q. I	56.25	63.25	3.43 .001	6.18	.001	
I.Q. III	58.65	67.47				0.668 ***
I.Q. II	55.79	61.49				
I.Q. III	58.65	67.41	4.09 .001	8.74	.001	
Entire Group	56.99	64.03				0.665 ***

\*\* Significance beyond .05,  $z = 1.96$ \*\* Significance beyond .01,  $z = 2.58$ \*\*\* Significance beyond .001,  $z = 3.29$ 

\*

\*\*

\*\*\*

Significance beyond .05,  $r = .306$ Significance beyond .01,  $r = .423$ Significance beyond .005,  $r = .463$



Group III and the H.A. Group corrected a smaller per cent of their miscues than any of the groups. (See Table X.)

Coefficients of correlation (Table XXII) would indicate that the H.A. Group, Boys, and I.Q. Group III were more adept than other groups in integrating syntactic and semantic cues as they read.

The degree to which children at grade four, average in reading achievement, are able to integrate the cue systems they use when they read may be indicative of a certain level of development in reading proficiency.

#### Integration of the Cue System

In order to discover the degree of integration of cue systems by groups, correlations were computed between number of graphic and phonemic miscues with the number of miscues unchanged in syntax and meaning. The correlation coefficients are tabulated below.

In the total group, the correlation between number of graphic miscues and number of miscues unchanged in syntax was only slightly greater than the correlation between number of phonemic miscues and number of miscues unchanged in syntax (Table XXIII.) Graphic miscues were more highly correlated with miscues unchanged in meaning than were phonemic miscues. That is, phonemic miscues were more closely related than graphic cues to change in meaning. The children in this study were learning to integrate their cue systems to a high degree, and the greater the per cent of miscues in which syntax and meaning were not changed, the greater was the per cent of phonemic and especially graphic miscues.





TABLE XXIII

CORRELATIONS BETWEEN NUMBER OF GRAPHIC AND PHONEMIC MISCUES  
WITH NUMBER OF MISCUES UNCHANGED IN SYNTAX AND MEANING.

Number of Graphic Miscues	<u>Correlated with:</u>	Number of Miscues Unchanged in Syntax	<u>and</u>	Number of Miscues Unchanged in Meaning
Boys		.77		.59
Girls		.47		.28
L.A.		.65		.39
H.A.		.67		.65
I.Q. I		.41		.20
I.Q. II		.70		.56
I.Q. III		.66		.76
Entire Group		.66		.50
Number of Phonemic Miscues				
Boys		.63		.41
Girls		.59		.29
L.A.		.60		.20
H.A.		.60		.57
I.Q. I		.48		.52
I.Q. II		.43		.21
I.Q. III		.73		.53
Entire Group		.63		.35



As shown in Table XXIII, the H.A. Group came closer than any other group in integrating the different cue systems. The H.A. Group also had the highest correlation between graphic and phonemic miscues (Table XXI), as well as the highest correlation between miscues which did not change syntax and miscues which did not change meaning. (Table XXII). The H.A. Group, followed closely by Boys and I.Q. Group III, demonstrated the most balanced use of cues from the different cue systems available to them.

### Summary

An analysis of miscues revealed the per cent of miscue types for each pupil-group and for the entire group. Although the groups differed in the per cents of the various miscue-types, for which some explanations were offered, the per cent of miscue-types for the entire group differed little from other studies which have established types of errors.

The results of the analysis of miscues by levels of language showed significant differences between groups. It was suggested that at grade four an excess of miscues on the sub-morphemic level indicates word recognition and word analysis difficulty, while miscues on the phrase and sentence level indicated progress in reading proficiency. Bound morpheme level miscues at grade four may signify that children are beginning to fill time and number words with meaning as they read. Inflections act as graphically-discernible extra cues.



Girls, L.A., I.Q. I, and I.Q. II may have been emphasizing recoding to the detriment of meaning. Boys, H.A. and I.Q. III appeared to be more intent upon total meaning.

## V. CHILDREN'S COMPREHENSION OF THE READING SELECTION

In this study, a comprehension rating was given for the retelling of the story by each child. The Comprehension measure (Appendix E), which was based on one used by Goodman (1967a: 37), was adapted to suit the narrative reading material selected for the present study. Inter-judge reliability on the Comprehension Measure was determined statistically. Reliability between the researcher and two independent raters was found to be 94 per cent ( $r_k = .941$ , where  $k = 3$ ) which was considered to be a high rate of agreement, necessary because the data used for the reliability test were from two taped interviews only. The use of the Comprehension Measure yielded information regarding pupil problems which may interfere with their comprehension, and strategies children may be using as they attempt to overcome these problems.

In this section, the level of children's comprehension scores is considered, followed by a summary of their relation to number of miscues, to corrections of miscues and to types and levels of miscues. Words, expressions, or sentence structures in the reading material which showed up as trouble spots for the children in this study will be discussed. The



phenomena which surface in their oral reading may provide insights into the children's level of reading proficiency and the strategies they may be using at grade four.

The retelling of the story by each child after he had read it aloud was the method used in this study to determine what the child understood from the story. There is no way of knowing, of course, whether what the child told matched what the child knew. However, unlike comprehension tests of choosing a best answer or filling in blanks, this method put no limits upon the child's thinking. As a result, many of the children were able to retell the story complete with details. A transcript of one child's retelling of the story is found in Appendix D. Many of the children stated that they had never before heard their voices on tape.

#### The Level of Comprehension

The mean comprehension scores by groups were computed and the range of comprehension scores tabulated. Table XXIV shows that the entire group of children rated comprehension scores which ranged from 12 to 32, with a mean score of 24.9 out of a possible 40 points.

The comprehension level was generally adequate, although there was a wide range of scores. Between groups, scores varied near the bottom of the range but not at the top of the range. Children selected for this study were average in reading achievement, and these comprehension scores indicate this. Apparently there were no superior readers, therefore the top scores between groups varied little.





TABLE XXIV  
MEAN COMPREHENSION SCORE BY GROUPS

Groups	Mean Score (40/40)	Range
Boys	27.2	19 - 32
Girls	22.7	12 - 30
L.A.	24.1	12 - 31
H.A.	26.1	16 - 32
I.Q. I	24.1	12 - 32
I.Q. II	25.0	14 - 31
I. Q. III	25.5	19 - 32
Entire Group	24.9	12 - 32

It is not surprising that the H.A. Group, who achieved somewhat higher on the California Reading Test than did the L.A. group, also had higher comprehension scores. The comparatively small difference between their mean scores is to be expected as well. It is also not surprising that the mean comprehension score increased from the Low to the Medium to the High I.Q. Group, although the differences were not as great as might be expected. What is perhaps surprising is that the boys' mean comprehension score is 4.5 points higher than that



of the girls.

Those able to substitute, omit or insert on the phrase level are processing information by thought units, and are more likely to understand what they read. In this study, boys exceeded girls in per cent of phrase level miscues (Table XVI); perhaps perception of meaningful units helped them to better comprehend the selection.

Boys also corrected a greater per cent of their miscues than did girls, and in the entire group of children the correlation between comprehension scores and miscues corrected was at the .05 level of confidence.

It has been suggested previously that boys appeared to use better meaning-getting techniques than girls, and that they appeared to possess a more inquiring attitude, or "set" for meaning. They may have been more intent upon meaning, or their experiential background and/or cognitive development may have made it easier for them to deal with relationships at the different levels of language. There is the possibility that boys, because of different expectations for the sexes in our culture, may have a more varied background of experience with which to interpret or evaluate information. In the retelling of the story, and in answers to questions asked by the investigator, boys showed a greater ability to use past experience to help them define words and interpret the story. Their descriptions were much more precise and detailed. Girls in this study were more cautious and limited in their answers to questions and in their re-telling of the story. They volunteered very little which was



not stated explicitly in this story. Boys tended to use information from their own experience to help them arrive at meaning. That is, boys more than girls, appeared to be thinking as they read.

However, it may be that girls deliberately chose to emphasize oral reading performance over meaning, since the children were not told before they read that they would be required to retell the story. Girls, who may be more anxious to please than boys, may have approached the task as though they were reading for an audience.

There is the possibility also that the reading material appealed more to boys than to girls, although the researcher was not able to determine any difference in the reaction of boys and girls to the story.

No clear relationship appeared to emerge between the comprehension scores and the number of miscues, although there was some indication that comprehension increased with an increase in miscues. Particularly at the extreme lower end of the range of mphw a lower comprehension rate was noted.

The children in this study who had few miscues and low comprehension scores were from I.Q. Groups I and II, and were more often girls than boys. Apparently, the syntax of the language more than the ideas conveyed by the language, served as a medium for the degree of comprehension that they were able to attain. Just as a child learning to read often concentrates on phonic relationships to the detriment of meaning, so, perhaps, the child in grade four who is most concerned about how the oral



reading sounds may lose meaning. Perhaps these children were not as advanced as the others in cognitive development, or had not learned to read for ideas. Too much emphasis may have been placed upon oral reading for sound at the sacrifice of meaning.

Types and levels, and more particularly the per cent of miscues which remained unchanged in syntax and meaning, were more important than number of miscues in a consideration of comprehension. For the entire group 57 per cent of the miscues did not involve change in syntax while 64 per cent did not involve change in meaning. (Table XXII)

The coefficient of correlation between miscues which did not change meaning and miscues which did not change syntax was at the .005 level of confidence for the whole group. Boys had a higher correlation than girls, H.A. higher than L.A., and I.Q. Group III higher than groups I and II. I.Q. Group II had a higher correlation than Group I. The correlation coefficient between graphic and phonemic miscues was significant at the .005 level for the total group. (Table XXI). Once again, boys had a higher correlation than girls, H.A. higher than L.A. and I.Q. Group III higher than Groups II and I. That is, boys, H.A. and I.Q. III were better able to use phonic relationships and relationships in the context, both of which are basic to reading comprehension.

In this study generally sex, reading achievement and I.Q. would appear to be related to level of reading comprehension. However, each child is unique in his background of experience, in his personality traits,





and in his development in language and cognition. What he brings to the printed page influences how he deals with reading cues and what he gets out of his reading.

The words and word sequences chosen by the author to communicate meaning also affects the degree of communication attained. It is assumed in this study that inferences regarding what the child brings to the printed page, as well as inferences regarding trouble spots in the reading material itself, may be drawn from an analysis of the child's oral reading miscues, his retelling of the story, and his answers to questions based upon the story.

#### Children's Answers to Questions and Their Definition of Words

Most of the children were able to outline the main action of the story, some in a much more abbreviated form than others. Only one child did not see the rescue of the little girls as the most exciting part of the story. For him, the experiences of Duke as a sentry dog during the war were more exciting. Previous to reading the story, this child had remarked that his favorite books were war stories.

The extent to which children try to use their background of experience was evident in some answers to questions:

Question I: What was Duke's reward?

Answer I: A ribbon.

Answer II: A bone.

Answer III: No reward, but they just petted him.



Question II: Why were the dogs called the K-9 Corps?

Answer I: Corps (Korps) is short for Corporal and they were in the army.

Answer II: Corps (Core) means inside of something.

Question: Then why were the dogs called the K-9 Corps?

Answer: Because they were inside of a group.

Question: What do you think K-9 means?

Answer: Its a dog-tag.

Question III: What sharp senses did Duke have?

Answer: He can hear the sounds 'cause dogs' ears can - well they're floppier than ours; our ears can't move around as much as their's can. Their's just kind of hang on to the edges and he could hear from all directions.

Definitions of words also provided clues. The researcher asked for the meaning of certain words using each word in a sentence in which it had appeared in the story. Definitions offered by some of the children follow:

Rickety:

Definition I: Steep.

Definition II: Rough, squeaky, and everything.

Definition III: Old, all wrecked up.

Definition IV: Goes round in circles.



Rickety (continued)

Definition V: A tricky ladder is made of rope.

Question: Why do you think it would be made out of rope?

Answer: Well, because the wooden ladders don't slip  
that easily.

Clinging:

Definition I: Going together and making sound.

Definition II: Crying.

Definition III: Something like dangling.

Definition IV: Trying to get there.

Dangling:

Definition I: Going back and forth real raggedy.

Definition II: Hurt.

Definition III: Slipping.

Definition IV: From one hand, holding on a little while  
and she might fall.

Scaled (a fence):

Definition I: Held on to the fence.

Definition II: Looked at it.

Definition III: The fence is coated with paint and it's in scales.

Children's Sources of Difficulty in the Reading Material

Certain words, phrases or expressions in the reading material were found to be miscued more often than others by children in this study. The



word "corps", for example, was not pronounced correctly by any child, although two were able to express the meaning of the word when asked to define it at the end of the session. "K-9" was read correctly by most children, but one boy read it as "K to 9," no doubt drawing from his experience of how a dash is usually read. (We often write K - 12, meaning from kindergarten to grade twelve.) Another reversed it to "9-K." No child in the study showed by his definitions that he had associated "K-9" with "canine." The word "rungs" was not familiar to several children. Perhaps some children today have too little experience with ladders to know the specific name attached to the "steps" of the ladder.

Other words, while familiar in one form, were apparently unfamiliar in another (e.g. "scale" was familiar to one child as noun but not as a verb). The omission of "rung" in the phrase "the top rung of the ladder" showed the child's preference for the word "top" as a noun rather than a noun modifier.

Seven children omitted the plural "s" on the word "senses" in the phrase "Duke's sharp senses of sight, smell, and hearing . . ." By omitting the "s" in "sides" in the phrase "clinging to the sides of the opening," several children communicated their feeling that the "s" was unnecessary. Similarly, nine children inserted the noun marker "the" before the noun "people" in the clause "when people of the neighborhood heard. . . "





Sometimes unfamiliarity of an expression could be an explanation for certain miscues. For example, the expression "turned him into the street" was changed by three children to "returned him to the street." Another child, apparently associating the words "turned him into. . . " with witchcraft, read, "turned him into a streak." The word "opening" was read first as "open" by many children in the phrase "to an opening in the roof," and usually corrected. The intonation pattern used led the researcher to believe that the expectation was for an adjective followed by a noun. A further example was the substitution of "frightening" for "frightened" by several children in the sentence: "One afternoon Duke heard cries of a frightened little girl. . . ." Apparently, the word "frightened," although no doubt familiar as a verb, was not familiar as an adjective.

The change in function of a word was sometimes accompanied by the disregard of punctuation marks and a change in the intonation pattern. The phrase "third floor porch" was a source of difficulty for some, often resulting in the insertion of terminal punctuation after the word "floor," and the omission of the word "porch." This is not surprising when consideration is given to the complexity of breaking down the concepts involved in this phrase e.g. "the porch on the floor which is three floors up." Hunt (1966: 739) wrote, ". . . It is the reduction and consolidation of many clauses into one which is intrically related to syntactic growth both in writing and reading. If writers must build up clauses, then readers must



break them down." Children in this study showed their level of proficiency in the way in which they dealt with complex language structures. They seemed to be using their own knowledge of language to predict what was next, so that there was a constant interplay between what they had seen on the page and what their language and experiential background told them was most likely in the context of what they were reading. In this connection, one miscue sometimes caused another. For example, the substitution of "that" for "what" in the clause "what Duke had done," caused a second miscue, the substitution of "gone" for "done."

Davis (1944) found that in children's written use of relative pronouns, "that" occurred more regularly than "who," "which," or "what." In the present study, the word "what" was a source of difficulty in two sentences in which it not only introduced a dependent clause but was an integral part of the dependent clause being the object in both sentences. Eleven children substituted "that" for "what" in the clause "what Duke had done," and eight children substituted "that" for "what" in the clause "what they thought of him." In connection with the first clause, four children corrected the miscue, three changed other words in an effort to make syntax and meaning acceptable, and four did not correct. The substitution miscue in the second clause, which made sense in the context, was corrected by two children only.

It is of interest to note the difference in complexity of language structure used in the story read (Appendix B) and the story retold



(Appendix D). Few relationship words were used by any of the children when they retold the story. Instead, sequential developments seemed to be strung together in a linear fashion with frequent use of the word "and." As they read the story aloud, the children sometimes changed the language structures in the written language to the more familiar patterns which they used in their oral speech. For example, in the following sentence two children inserted the word "and" changing the function of the word "that" from clause marker to noun: "First he had to scale a fence and <sup>^</sup> that was fourteen feet high. . . ." This miscue also changed the subordinate adjective clause to a principal clause. However, the meaning remained constant. Seven times in this study a conjunction (and) was substituted for a clause marker (that). Although conjunctions comprised only 6.94 per cent of the words in the story read, the miscued responses which were conjunctions comprised 10.28 per cent of the total miscued responses. The fact that 18 per cent of the miscued function word stimuli were clause markers, while only 10.28 per cent of the miscued function word responses were clause markers points to the omission of clause markers and the substitution of words of another function for the clause marker.

That no children in the study substituted "and" for terminal punctuation as they read may indicate that in reading material they are learning to think in a different pattern from that which they ordinarily use in their speech and which they used in earlier stages of reading



(Goodman 1967a:186-87). Perhaps it is through reading, as Rawson suggests, that a child's ability to manipulate abstract relationships emerges.

In the following sentences, the deletion of the word "that" may have contributed to reading difficulty : ". . . Duke was happy because friendship is the greatest reward(deletion of "that") a hero can receive." Although no one inserted "that" after the word "reward," five children inserted "of," two inserted "to," and one inserted "for," thus communicating that they felt that something was missing at that point. (The position of the adjective clause inside an adverb clause may have compounded the difficulty of this sentence.)

Adjectives and adjective clauses have been reported to be a source of difficulty for grade four children by O'Donnell and Watts. The fact that the per cent of adjectives occurring as miscues in this study was twice as great as the per cent occurring in the story adds to the evidence that adjectives do present problems at grade four. Adjectives are a type of embedded transformation, which Fagan (1969) found associated with reading difficulty in the middle grades.

In this study, the words "opened his jaws wide" presented problem for several children. Some read, ". . . opened his wide jaws. . . " thus changing "wide" from an adverb to an adjective. Others read ". . . opened his jaws widely. . . " apparently feeling the need for a "ly" ending on the adverb. To the children who miscued on this word





"wide" was deemed unsuitable as an adverb.

The negative "not," while it often remained unchanged, appeared to be a cue for the other changes. This was a common occurrence in connection with a deletion in ". . . but (he did) not (come back) to the happy home. . . ." One child read, ". . . but not to <sup>be</sup> . . . ." while others read, ". . . but <sup>he was</sup> not . . . ." Two children substituted an intensifier for a phrase marker in this same sentence. One read, ". . . but not <sup>too</sup> to the happy . . . ." Another read, ". . . but <sup>was</sup> ^ not <sup>too</sup> happy home . . . ." The intonation pattern indicated that the child to in each case had substituted "too" for "to." Other children repeated the words "but not" when reading this sentence, in order perhaps to regress or to read ahead silently before reading aloud. Sometimes, a pause seemed to fulfil the same purpose.

The position of the word at the end of a line sometimes cued the child wrongly as to the part of speech. For example, the word "guard" at the end of a line in the phrase "as guard dogs," was often read first as a noun, then as a noun modifier. Some read, "As guard, <sup>they</sup> dog . . .," and then regressed to correct both intonation and substitution miscue.

The fact that children use and expect to find the noun-verb-object sentence pattern more often than any other is indicated by numerous miscues such as the following: "When they left <sup>o</sup> Duke ^ . . ." By placing the pause after "Duke" instead of after "left," the child converted this part of the sentence to a more familiar and more frequently used



pattern. Here, as in most cases, the children's guesses at points of uncertainty seemed to depend on contextual cues rather than on graphic information.

More than half the miscued responses (50.19 per cent) were function word miscues, although the per cent of function words in the story was 41.89 per cent. This does not take into account the omission of function words, which could not be classified as "responses." These figures would suggest, as Table XV shows, that the children were reading on a phrase and sentence level. Their ability to use their knowledge of syntax was demonstrated in their miscues. Out of 145 substitutions of one function word for another, 84.14 per cent of them were the same class of function word.

In 93.5 per cent of all substitution miscues in this study, the stimulus and response had the same grammatical function. In twenty-eight instances, which is an average of less than one per child, the part of speech was changed (e.g., an adjective became a noun, or an adverb became an adjective). Children in grade four show an increasing control over the syntax of their language, as compared with figures reported by Goodman (1967) and Clay (1968) in their studies of grade one children.

## VI. SUMMARY

This chapter examined the data obtained from the oral reading of thirty grade four children of average reading achievement. The description of the reading phenomena both statistical and non-statistical, was presented.



No significant differences by sex, reading achievement, or I.Q. in the number of reading miscues was found.

No significant difference in the proportion of miscues corrected was found for the sex variable, but was for the reading achievement and I.Q. variables. Although boys corrected a greater per cent of miscues than did girls, the difference between proportions approached but did not reach the .05 level of confidence. The L.A. achievement group corrected a significantly higher proportion of its miscues than the H.A. achievement group. I.Q. Group II had a significantly higher per cent of miscues corrected than either Group III or Group I; Group I had a significantly higher per cent of miscues corrected than Group III. It was suggested that the H.A. achievement group and I.Q. group III may have corrected less proportionately than the other groups because their miscues may not have seriously upset the syntax and meaning of what they read. That is, their miscues may have been "better" than those of other groups and therefore required less correction.

A significant difference by sex, reading achievement, and I.Q. in the proportion of miscues according to type of miscue and level of language, was found for type of miscue except in the case of substitutions made by reading achievement groups and by I.Q. Groups I and III, as well as insertions and omissions made by I.Q. Groups I and III. Differences in the proportion of miscues at levels of language were significant except at the bound morpheme level for sex, the free morpheme



level for I.Q., and the phrase level for I.Q. Groups I and II.

The number of miscues was not by itself an indication of reading proficiency level. However, it was suggested that the child at grade four who achieves near-perfection in oral reading is not likely to have a good understanding of what he has read.

The analysis of data on correction of miscues showed that it was not so much the number of miscues corrected as the significance of the corrections made which signifies the level of reading proficiency. It was suggested that the child with a "set for meaning" had developed his own strategy of ignoring those miscues which make no difference to syntax and meaning. Analysis of the type and level of children's miscues, along with the degree to which children integrated the phonic and syntactic-semantic cue systems was productive of insights into their level of proficiency and into some of the strategies they used to gain meaning.

A stage in the development of comprehension of time and number elements and of function words which signal relationships, was inferred from the analysis.

Miscues made by children in this study changed meaning less than syntax. That is, good readers appeared to be emphasizing meaning to the detriment of oral syntax. Comprehension was increased when children balanced the use of phonics and context.

#### Results of Comprehension Measure

A comparison of mean comprehension scores by group showed that





boys had a higher score than girls, H.A. a higher score than L.A., and I.Q. III a higher score than I.Q. II and I.Q. I, and I.Q. II a higher score than I.Q. I. Possible explanations were offered for these differences. It was found that sex, reading achievement and I.Q. were related to the level of reading comprehension of children in this study.



## CHAPTER V

### SUMMARY, MAIN FINDINGS, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH.

#### I. SUMMARY

The purpose of the present investigation was to describe the reading phenomena of grade four students, average in reading achievement through a linguistic analysis of miscues in their oral reading

In this investigation, 276 grade four pupils in three schools of the Edmonton Public School System were administered the California Reading Test, Elementary Form X. On the basis of the results of this test, ninety-four middle achievers in grade four were chosen from which the test sample of fifteen boys and fifteen girls was randomly selected. I.Q. data were obtained from the official school records.

Pupils' oral reading provided the data for this study. A short narrative of 4.9 readability level was selected as reading material. The children retold the story as an informal comprehension measure.

Pupils' oral reading miscues were tabulated according to the Goodman Taxonomy of Reading Miscues. Both statistical and non-statistical analysis contributed to the findings of the study. For the statistical analysis a hypothesis was formulated and tested, using t-tests, a one-way analysis of variance, Pearson product-moment correlation coefficients and a proportions test for significance. A summary of the main findings of both the statistical



and the non-statistical analysis is found in the second part of this chapter. Conclusions, implications and suggestions for further research follow.

## II MAIN FINDINGS

The main findings of the investigation have been summarized; first in regard to the hypothesis, and second, in regard to the informal analysis.

The hypothesis stated:

There is no significant difference in oral readers

- (a) by sex
- (b) by reading achievement scores
- (c) by I.Q. scores

in the

1. number of miscues per hundred words (mphw).
2. proportion of miscues corrected by regression (the re-reading aloud of any part of the reading material).
3. proportion of miscues according to type of miscue and level of language.

The data analysis indicated that there is no significant difference by sex, reading achievement, or I.Q. in the number of miscues per hundred words.

- (a) Boys and girls did not differ significantly in their number of reading miscues.



(b) There was no significant relationship between reading achievement and number of reading miscues.

(c) The differences between I.Q. groups in their number of reading miscues was not significant.

On the basis of these findings, part one of the hypothesis was upheld. There were no significant differences by sex, reading achievement, or I.Q. in the number of miscues per hundred words.

There is no significant difference by sex, reading achievement, or I.Q. in the per cent of miscues corrected by regression.

(a) Sex was not a significant predictor of the per cent of miscues corrected by regression.

(b) The L.A. Achievement Group corrected a significantly higher proportion of its miscues than the H.A. Achievement Group.

(c) I.Q. Group II had a significantly higher per cent of miscues corrected than either Group I or Group III. Group I had a significantly higher per cent of miscues corrected than did Group III.

Part two of the hypothesis was therefore accepted in relation to the sex factor. It was rejected in relation to the reading achievement and I.Q. variables.

There is no significant difference by sex, reading achievement,





or I.Q. in the per cent of miscues by type and by level of language.

- (a) Girls had a significantly higher proportion of substitution-type and insertion-type miscues than boys. Boys had a significantly higher proportion of omission type miscues than girls.

Girls had a significantly higher proportion than boys of sub-morpheme level and sentence level miscues. The proportion of miscues at the free morpheme level and phrase level was significantly higher for boys than for girls. There was no significant difference between boys and girls in their proportions of bound morpheme miscues.

- (b) The H.A. Achievement Group had a significantly higher proportion of insertion-type miscues than did the L.A. Achievement Group. The L.A. Achievement Group had a significantly greater proportion of omission-type miscues than did the H.A. Group. The difference in the proportions of substitution type miscues of the achievement groups was not significant.

The proportion of miscues by achievement groups according to levels of language was significantly higher for the L.A. Group at the sub-morpheme and bound morpheme levels, and for the H.A. Group at the free morpheme, phrase, and sentence levels.

- (c) I.Q. Groups I and III had a significantly higher proportion than I.Q. Group II of insertion-type and omission-type miscues.



The proportion of substitution-type miscues made by Group II was significantly greater than those made by Group I or Group III. Groups I and III did not differ significantly in their proportions of insertion, omission and substitution-type miscues.

At the sub-morpheme, bound morpheme and sentence levels, there were significant differences in proportion between all three I.Q. groups. As I.Q. increased, the per cent of bound morpheme level and sentence level miscues increased, and the per cent of sub-morpheme level miscues decreased. At the phrase level, Groups I and II had significantly higher proportions of miscues than Group III. The difference between the proportions of miscues made by Groups I and II was not significant. There was no significant difference between proportions at the free morpheme level.

Part three of the hypothesis was therefore rejected except for the sex groups in the case of bound morpheme level miscues; the achievement groups in the case of substitution-type miscues; I.Q. Groups I and III in regard to insertion, omission, and substitution-type miscues, I.Q. Groups I and II at the phrase level and all I.Q. groups at the free morpheme level.

#### Informal Analysis Findings.

Additional observations resulting from a non-statistical study of pupils' miscues were made. Further statistical results of interest were also discussed. Briefly, the informal analysis resulted in the following findings:



### Reading Phenomena Related to Number of Miscues

1. The mean number of mphw for the entire group was 6.6.
2. The number of miscues made by individual ranged from 2 - 12 mphw.
3. The number of miscues tended to increase with increase in comprehension.
4. The child who had less than 4 mphw was not likely to have a good understanding of what he read.

### Reading Phenomena Related to Corrections

1. The per cent of miscues corrected was 21.44.
2. The range of percentage of corrections by individuals was from 6 - 75 per cent.
3. When children attempted to correct their miscues, they were successful 95 per cent of the time.
4. When the mphw rose to the 9 - 12 range, the rate of correction was very low.
5. In general, as mphw increased the per cent of miscues corrected decreased.
6. Fewer corrections were made of those miscues which did not change syntax or meaning. For example, the substitution of the word "great" for "big" which did not change the syntax or the meaning of the sentence, was not corrected.



7. Girls had considerably more intonational regressions and phrase regressions than did boys.

8. The High I.Q. Group had the largest number of mphw and the smallest per cent of corrections of any group.

9. There was some evidence that correcting was taking place covertly during pauses and repetitions.

#### Reading Phenomena Related to Type and Level of Miscues

1. Although more than half of the miscues were substitutions, more than 42 per cent were omissions and insertions.

2. Omissions were of familiar words. There were no refusals. Many omission miscues may have resulted from the lack of balance in the temporal eye-voice span.

3. The number of reversals as well as the number of mixed miscue types (e.g. substitution with omission or insertion) was very small.

4. The per cent of miscues on the sub-morpheme level ranged from 10.98 to 18.04 in the groups, with an average of 14.34 for the entire group. Girls had a higher per cent of sub-morphemic miscues than any other group.

5. Sub-morphemic miscues increased as I.Q. scores and achievement scores decreased. Meaning-getting strategies and/or word attack skills were considered to be somewhat deficient in those children with a large number of sub-morphemic miscues.





6. The per cent of miscues on the bound morpheme level for the entire group was 6.57. The range for I.Q. groups was from 3.93 to 9.42 per cent.

7. Almost 80 per cent of all miscues were on the word, phrase or sentence levels.

8. Ignoring of punctuation signals was quite common.

9. Phonemic miscues were more common with girls and graphic miscues with boys.

10. The correlations between graphic and phonemic miscues, which indicated stronger phonic generalizations, were higher for boys than girls, higher for I.Q. III than I.Q. I or II, and higher for H.A. than L.A.

11. All groups had fewer changes in meaning than in syntax. Miscues left syntax unchanged 57 per cent of the time and meaning 64 per cent of the time.

12. The coefficient of correlation between number of miscues which did not change meaning and number of miscues which did not change syntax was at the .005 level of confidence for the whole group. Boys had a higher correlation than girls, H.A. higher than L.A., and I.Q. Group III higher than I.Q. Groups II and I. The higher correlation indicates a greater awareness by children of relationships between grammar and meaning.



### Phenomena Related to Reading Comprehension

1. The range of comprehension scores varied widely among grade four children of average reading achievement (from 12 – 32 out of a possible score of 40).
2. Boys used their past experience to a greater degree than girls in defining words and figuring out meanings.
3. Children's retelling of the story they had read demonstrated a linear pattern of language which they were using, with structures frequently joined together by the word "and."
4. Children whose miscues involved the least change in syntax and meaning had the highest comprehension score.
5. Numbers of miscues did not appear to be directly related to comprehension scores, although a very small number of miscues may indicate a comprehension problem. The child who was a joy to listen to as he read did not necessarily have a good understanding of what he was reading.
6. Children who were concentrating upon the higher levels of language (phrase or sentence) were better able to understand what they read.
7. Some children made "better" corrections than others. That is, their corrections made more difference to the meaning.

### Phenomena Related to Grammatical Function of Miscues

1. Children's miscues retained the same function as the stimulus



word almost 95 per cent of the time.

2. Over 50 per cent of all miscues were function words.
3. Children's miscued function words retained their particular function almost 85 per cent of the time. For example, the words "in" and "on" serve the same function.
4. When a miscue upset a sentence grammatically, the child sometimes miscued farther on in the sentence to render it grammatically correct.
5. Clause markers of relationship were a source of difficulty.
6. Other language structures miscued more than others included the adjective and adjective clause, the noun clause and the noun-adjunct.
7. Deletion and embedding transformations were apparently a source of difficulty.
8. Although "and" was sometimes substituted for a clause marker within a sentence, never once did a child in this study substitute "and" for terminal juncture between sentences.
9. Children at grade four often changed the written language to conform to their own familiar patterns of language and thinking.
10. Meaning cues such as function words and punctuation signals were often ignored by the grade four child.
11. Children sometimes miscued when a word or phrase was separated at the end of a line.



### Reading Phenomena Related to the Taxonomy Categories

1. The number of miscues was almost negligible for certain categories of the taxonomy, e.g. allologs, stimulus in periphery, and habitual association miscues. Dialect was not involved in this story, although there were a few speech idiosyncracies which were sub-categorized under dialect. Children in this study did not substitute antonyms when they miscued in the semantic category, nor was there any full vowel substitution for schwa listed in the phonemic category.

2. There were no graphic sub-categories provided in which to list miscues connected with the ignoring of punctuation signals and miscues connected with the breaking of words or phrases at the end of a line of print.

### III CONCLUSIONS

From the findings, both statistical and non-statistical, the following conclusions were drawn:

1. The oral reading accuracy of a child as he reads in an assessment situation is not an important consideration if his comprehension is adequate. The number of miscues in oral reading should not be considered a reliable gauge for comprehension attained, since it was found that the children with higher comprehension scores often disregarded the mechanics of oral reading, thus producing more miscues.

2. The child in grade four who has less than 4 mphw should be tested very carefully for his comprehension of the reading material.





Although he reads orally as though he understands what he is reading, he may be merely recoding from the written to the oral symbols.

3. Many miscues are made as the child attempts to adjust the speed of the eye to the voice in oral reading in an appraisal situation.

4. The overt correction of oral reading miscues is a method for obtaining more meaning.

5. The quality of the correction of the oral reading miscue rather than the number of corrections was concluded to affect comprehension. The better reader is more discriminative of his corrections.

6. The ability to make oral reading miscue corrections which increase meaning depends upon the child's awareness of discrepancies in the grammar or meaning of what he has read. These discrepancies are more frequently detected by the child who uses larger sequences of language as he reads.

7. This discrimination technique is better developed in children of higher intelligence.

8. Some of the strategies used by children in correcting their miscues were not easily discernible in this study. It appeared that miscues were being corrected covertly.

9. As a child reads, the meaning which a word has for him depends upon the function of the word in the sentence and the context in which it appears. It also depends upon his background of experience.

10. It was concluded that children were at a critical developmental



stage in the comprehension of relationships, since over 50 per cent of miscues were function words which often signal relationships. In particular, clause markers substituted or ignored may be clues to the child's level of cognitive and linguistic development. Also children were found to substitute familiar linear patterns of syntax for patterns of relationship in the reading material within the sentence but they did not substitute the conjunction "and" for terminal juncture between sentences, as they did in their re-telling of the story and as Goodman (1967a: 186) reported that young children do when they read.

11. Children place extra emphasis upon meaning at this stage in their oral reading development. Miscues remained unchanged in meaning more often than in syntax. The ability to hold meaning constant while miscuing on syntax indicates that children were concentrating upon meaning. Perhaps, as Goodman (1967a) suggested, reading proficiency may be on a continuum which progresses from an awareness of syntax to an increasing awareness of meaning.

12. Children of high intelligence develop an awareness of bound morpheme elements, which are structural cues to meaning in language.

13. The ignoring of punctuation signals to intonation is indicative of a stage of oral reading development at which graphic cues are subordinated to the syntactic and semantic relationships which are being emphasized by the child.

14. Balance in the use of cues is a mark of the good reader. The



degree of integration of cue systems (grapho-phonemic, syntactic-semantic) appears to be a measure of reading proficiency at grade four since groups in this study with the highest degree of integration were the most proficient readers (H.A., I.Q. III, and Boys).

15. Reading strategies of girls were not so productive of meaning as those of boys. Boys appeared to be more intent upon meaning. They were better able to balance the use of cues at the different levels of language. The girls appeared to be more concerned with the sound of their oral reading. Their extra attention to or dependence upon how language sounds was evidenced by their larger per cent of phonemic miscues and intonational regressions.

However, girls may have chosen deliberately to emphasize oral reading production over meaning, since children were not told before reading the story that they would be required to retell the story.

16. Even within the narrow range of reading achievement represented by children in this study, individuals differed widely in the number and pattern of oral reading miscues, irrespective of differences in sex or I.Q. scores. However, commonalities were also evident.

17. The use of the Goodman Taxonomy of Miscues yielded valuable information about what grade four children, average in reading achievement, do when they read. The method of analysis while time consuming, provided a wealth of material for describing the observed oral reading phenomena of these children, and drawing inferences regarding their level



of development, their reading proficiency, and strategies they may have been using in their oral reading.

#### IV. IMPLICATIONS

From the conclusion, the following implications were drawn which apply only to oral reading in an appraisal situation, as set forth in this study, and to a similar group of children tested in similar ways.

1. Since number of miscues is not necessarily an indication of comprehension level, and the "good" oral reader may not have a good understanding of what he reads, less attention need be given to accurate oral reading in an appraisal situation and more to comprehension of what is read. The teacher should design better methods to check the child's comprehension since this is of primary importance. If comprehension is found to be deficient, the child's oral reading can be taped and a close check of miscues and their effect upon meaning can be made. Methods should then be devised to deal with particular hindrances to comprehension. However, any oral reading test which bases its score on number of oral reading errors and answers to simple comprehension questions should be used with caution.

The classroom teacher who is faced with the task of developing the child's comprehension skills will need curriculum guidance, pre-service and in-service training, and suitable published materials.

2. Regressions by the child to correct miscues in oral reading should not be discouraged by the teacher since correcting is a meaning-getting





strategy. Neither should the teacher insist upon correction of every oral reading miscue, since this may place too much emphasis upon word recognition and may interfere with the development of the child's own meaning-getting strategy. Because the increased comprehension of the child is the teacher's main concern she should help the child differentiate between miscues which require correction and those which do not. She should encourage the development of this discrimination technique by stimulating the child to actively search for meaning in his reading and to become aware of discrepancies in the grammar and meaning of what he has read (e.g. by listening to his own oral reading on tape). She should also be aware that children may be correcting covertly as they read orally.

3. Teachers should be aware that even a "known" word may not be understood or read accurately when its function in a sentence changes or when it appears in complex structures. For example, the phrase "third floor porch" may present difficulties for the child although the words taken singly in another context may be recognized and understood. The child should be given practice in "breaking down" such a phrase (e.g. "the porch on the third floor" or "the porch which is three floors up") so that he has a method of attack when he meets similar problems in his reading.

When teacher and class together explore word meanings in depth children become aware of subtle differences in meaning. Synonyms can be substituted in sentences to show precise differences in meaning.



Meanings of words as they vary in different context can be discussed.

The teacher must also use every means at her disposal (e.g. pictures, filmstrips, excursions, background reading) to improve the child's concepts which are basic to his understanding of what he reads.

4. Some children in grade four may benefit from having structural clues to meaning pointed out to them. The teacher may find opportunities for bringing the functions of bound morphemes to their attention in reading and language classes, or in connection with spelling of root words with suffixes and prefixes.

Correction of intonation patterns in oral reading requires attention at the grade four level. However, requiring the child in the midst of his oral reading to match his intonation pattern with the punctuation marks on the page may interfere with his thought-getting processes. Nevertheless, the teacher should prepare definite lessons in which the child is taught to interpret the use of certain punctuation marks as signals to meaning. Perhaps in some cases the teacher may supply extra cues to help children read by syntactic constituents (e.g. by underlining phrases or using stress marks.) Lessons on the use of context clues to meaning and the relationship between sentences in a paragraph should be taught also. In addition, the child can be helped to make better predictions by the reading of interesting materials containing a variety of language structures.

Teachers' resource materials should offer guidance in the preparation



of definite lessons to equip the child with tools by which he can work out independently the meaning of reading matter. Inservice for teachers might take the form of preparing such lessons under expert guidance.

5. Children should learn grapho-phonemic correspondences as soon as possible because correct predictions of language sequences depend upon them. Teachers must make certain that children learn these phonic skills which are basic to reading comprehension.

6. Children should be challenged to think as they read. Any given assignment must stimulate the child to read actively rather than passively and must get him started on an aggressive search for meaning. Teachers' questions following the reading should centre the child's attention on meaning and show him the importance of careful reading for meaning and the necessity for clear understanding. Verbalism for the purpose of covering up imprecise thinking should be discouraged. The child should often be required to back up or prove the inferences he draws from his reading.

Emphasis should be placed upon the meaning of the selection and not upon the reading production of it. In the event that the child progresses to reading orally for an audience the production of the oral reading should then be emphasized.

Pre-service and in-service training could provide teachers with better training in questioning techniques.

7. There are two main reasons for requiring the child to read orally,



one for diagnostic purposes, the other to communicate with an audience which does not have access to what is being read. In this latter situation silent reading should precede oral reading. This will help the child to balance the speed of the eye and the voice as he reads orally and will result in better oral communication. In this case, the teacher should be concerned with having the child respond exactly to the printing on the page.

8. Since thirty children in the present study gave thirty patterns of miscues, educators cannot escape the demands of individualization in teaching reading. Yet across the differences in reading behavior certain commonalities emerged (e.g. every child attained some measure of comprehension as he read orally). Educators must work from these commonalities, adapting materials and methods to each individual while at the same time offering him encouragement and freedom to develop in his own unique way. Teacher-educators, curriculum builders, and classroom teachers can best serve the individual in this way.

9. The Goodman Taxonomy of Reading Miscues could be used in its entirety by schools with research service to provide descriptions of reading performance of children at different levels. Relevant sections of the taxonomy could be passed on to teachers, who could be trained in its use. The research services should be alert to make periodic reviews of the oral reading phenomena at selected grade levels.





## V. SUGGESTIONS FOR FURTHER RESEARCH

Researchers should devise studies in depth to further investigate the following:

Children's development in the use of the cue system (grapho-phonemic, syntactic-semantic). A similarly devised investigation, with children average in reading achievement at both grade four and other levels could be beneficial as a confirmation of findings in this study or as a means of comparing data at one level with data at another level. Since in this study it was suggested that semantic cues were being emphasized over syntactic cues, it might be helpful to know the developmental pattern.

Children's patterns of development in the comprehension of relationships. Additional studies, restricted to specific areas to give in-depth findings, might identify a definite progression by children in the comprehension of certain relational words. A gradual change from thinking in a linear pattern, beginning between sentences and advancing to within the sentence, might be shown. More specific and detailed information concerning this shift might result from such a study.

Children's disregard of punctuation. Several similar studies at different grade levels might show whether punctuation suffers at certain stages in reading when there is an imbalance between the cues used in reading (e.g. an excess of meaning cues over syntactic cues or syntactic-



semantic over grapho-phonemic).

Children who have low comprehension scores but few miscues in oral reading. A study might provide data from which inferences could be drawn about problems of reading comprehension.

Children's development in the use of overt corrections in oral language. Through similar studies made of different grade levels, an investigation could be made of the child's ability to use corrections discriminately.

Possible differences between boys and girls in their oral reading strategies. A study might provide important information concerning what boys and girls do when they read.



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## APPENDICES



## APPENDIX A

### Goodman's Taxonomy of Reading Miscues



## CODING - STUDY OF READING MISCUES

Kenneth S. Goodman  
Wayne State University

### 1. Correction

- 0 no
- 1 yes
- 2 abandons correct response
- 9 unsuccessful

### 2. Grammatical function of response

- |             |                 |
|-------------|-----------------|
| 1 noun      | 4 adverb        |
| 2 verb      | 5 function word |
| 3 adjective | 6 indeterminate |

### 3. Grammatical function of stimulus

- |             |                 |
|-------------|-----------------|
| 1 noun      | 4 adverb        |
| 2 verb      | 5 function word |
| 3 adjective | 6 indeterminate |

### 4. Miscue type

- |                |                            |
|----------------|----------------------------|
| 1 substitution | 4 reversal                 |
| 2 insertion    | 5 reversal with 1, 2, 3    |
| 3 omission     | 6 substitution with 2 or 3 |

### 5. Related to other errors

- 0 no
- 1 prior error
- 2 subsequent error
- 9 doubtful

### 6. Word-Phrase identification

- 0 never
- 1 correct earlier instance
- 2-8 instance of correction
- 9 inconsistent



## 7. Times error is repeated (word only)

- 1-8 number
- 9 more

## 8. Level

- |   |                  |                     |               |
|---|------------------|---------------------|---------------|
| 1 | sub-morpheme     | 3                   | free morpheme |
| 2 | morpheme (bound) | 4                   | phrase        |
|   | 5                | sentence and larger |               |

## 9. Words in miscue

- 0 less than one
- 1-9 one to nine (or more)

## 10. Graphic (R = response; S = stimulus)

- |   |  |   |                      |
|---|--|---|----------------------|
| 0 | non  | 5 | R sound non-word     |
| 1 | R & S differ in single grapheme (including diagraph) | 6 | R & S are homographs |
|   |  | 7 | splitting syllables  |
| 2 | similar spelling                                     | 8 | allolograph          |
| 3 | general configuration corresponds                    |   |                      |

## 11. Stimulus in periphery

- 0 no
- 1 close (1 line above or below)
- 2 extended
- 9 doubtful

## 12. Is dialect involved?

- |   |     |   |                     |
|---|-----|---|---------------------|
| 0 | no  | 2 | speech idiosyncrasy |
| 1 | yes | 9 | doubtful            |

## 13. Habitual association (words only)

- |   |                 |   |                          |
|---|-----------------|---|--------------------------|
| 0 | no              | 2 | sequentially association |
| 1 | S-R association | 9 | inconsistent             |

## 14. Phonemic

- |   |                                |   |                                      |
|---|--------------------------------|---|--------------------------------------|
| 0 | none                           |   |                                      |
| 1 | R & S differ by single phoneme | 4 | morphophonemic variant and allomorph |





## 14 continued

- |   |  |  |                                   |
|---|--|--|-----------------------------------|
| 2 | R & S differ by single consonant phoneme | 5  | full vowel substitution for schwa |
| 3 | R & S are homophones                     |  |                                   |
|   | 6  | same as 1 or 2 but involves 2 phoneme sequence |                                   |

## 15. Allologs

- |   |                     |   |                      |
|---|---------------------|---|----------------------|
| 0 | none                | 2 | full for contraction |
| 1 | correction for full | 3 | long and short forms |

## 16. Morpheme (bound)

- |   |                      |   |                  |
|---|----------------------|---|------------------|
| 0 | none                 | 4 | prefix           |
| 1 | inflectional suffix  | 5 | part of compound |
| 2 | contractional suffix | 6 | syllable         |
| 3 | derivational suffix  |   |                  |

## 17. Non-inflected

- |   |           |   |                |
|---|-----------|---|----------------|
| 0 | no        | 3 | adjective form |
| 1 | verb form | 4 | adverb form    |
| 2 | noun form | 5 | function word  |

## 18. Function word (words of phrases) Response

- |   |                       |                                  |                 |
|---|-----------------------|----------------------------------|-----------------|
| 0 | no                    | 4                                | question marker |
| + | other (well, oh, etc) | 5                                | clause marker   |
| 1 | noun marker           | 6                                | phrase marker   |
| 2 | verb marker           | 7                                | intensifier     |
| 3 | verb particles        | 8                                | conjunction     |
|   | 9                     | negative (including don't, etc.) |                 |

## 19. Function word (word or phrases) Stimulus

- |   |                        |   |   |
|---|------------------------|---|---|
| 0 | no                     | 5 | clause marker                                     |
| + | other (well, oh, etc.) | 6 | phrase marker                                     |
| 1 | noun marker            | 7 | intensifier                                       |
| 2 | verb marker            | 8 | conjunction                                       |
| 3 | verb particles         | 9 | negative (including don't, didn't, doesn't, etc.) |
| 4 | question marker        |   |   |



## 20. Syntax

- 0 no
- 1 single element (including particle)
- 2 rephrasing with basic elements retained
- 3 rephrasing with rewording
- 4 dialogue carriers

## 21. Transformation

- |   |   |   |   |
|---|---|---|---|
| 0 | no  | 3 | transformation to dialect based form      |
| 1 | grammatical transformation alternate (equivalent phrases) |   |   |
| 2 | grammatical transformation (non-equivalent)               | 4 | revision to achieve syntactic consistency |

## 22. Semantic (word or phrase)

- |   |                      |   |              |
|---|----------------------|---|--------------|
| 0 | no                   | 3 | antonym      |
| 1 | synonym substitution | 4 | similar name |
| 2 | associated meaning   |   |              |

## 23. Intonation

- |   |   |   |  |
|---|---|---|--|
| 0 | no  | 4 | end of phrase or sentence (terminal)                     |
| 1 | within words                                      |   |  |
| 2 | between words                                     | 5 | conjunction substituted for terminal junction and phrase |
| 3 | relative in phrase and sentence, pitch and stress |   |  |

## 24. Syntactic acceptability

- |   |                 |   |                  |
|---|-----------------|---|------------------|
| 0 | no              | 3 | in sentence only |
| 1 | only with prior | 4 | in passage       |
| 2 | only after      |   |                  |

## 25. Semantic acceptability

- 0 no
- 1 only with prior
- 2 only after
- 3 in sentence only
- 4 in passage



26. Intonation acceptable

- |   |  |   |                 |
|---|--|---|-----------------|
| 0 | no   | 2 | only with prior |
| 1 | acceptable (doesn't conflict with rest of passage) | 3 | only after      |

27. Is meaning changed?

- 0 no
- 1 yes
- 9 doubtful

28. Is syntax changed?

- 0 no
- 1 yes
- 9 doubtful



## APPENDIX B

Copy of Story Used in the Study





## DUKE, A DOG HERO

During the World War many dogs served their country in the famous K-9 Corps. As guard dogs, sentry dogs, and messengers, they did many brave acts. Some of the K-9 Corps have shown great courage since returning from the war, too.

During the war, Duke, a big German Shepherd dog, served as a sentry dog in the Pacific. Many times, Duke's sharp senses of sight, smell, and hearing had saved the men of his Company from a surprise attack.

When the war was over, Duke came back to the United States, but not to the happy home and kind master he deserved. His new master treated Duke cruelly and finally turned him into the street.

A kind policeman who saw poor Duke took him to an animal shelter. There he was well cared for.

One day three young brothers visited the shelter in search of a pet. When they left, Duke went with them to their home in an apartment building.



At last Duke had found a home that he deserved. Each night he slept beside the bed of the oldest boy. While the boys were at school, Duke lay in the sun on the apartment porch.

One afternoon Duke heard cries of a frightened little girl who lived in an apartment building two doors away. She had been exploring and had climbed a rickety ladder to an opening in the roof of the third floor porch. When she started down the rickety ladder again, her feet slipped and she could not find the top rung of the ladder. She was clinging to the sides of the opening, with her feet dangling ten feet above the porch floor.

Duke jumped up and raced down his own stairway. First he had to scale a fence that was fourteen feet high, then another which was fifteen feet high. He ran up to the third floor and climbed the rickety ladder.

Ever so gently, Duke opened his jaws wide and took the little girl's feet, one at a time, in his strong, white teeth. He guided her feet to the rungs of the ladder. Then, as the child climbed down he moved slowly below her as if to protect her from falling.



When the people of the neighborhood heard what Duke had done, the German Shepherd dog was called a hero. Everyone talked of his courage and let the dog know what they thought of him.

And of course, Duke was happy because friendship is the greatest reward a hero can receive.



## APPENDIX C

Copy of Typical Worksheet





## DUKE, A DOG HERO

During the World War many dogs served  
 of <sup>K-9 Corps</sup>  
 their country in the famous K-9 Corps. As guard  
 dogs, sentry dogs, and messengers, they did many  
 brave acts. Some of the <sup>K-9 dogs</sup> K-9 Corps have shown  
 great courage since returning from the war, too.

During the war, Duke, a big German Shepherd  
 dog, served as a sentry dog in the Pacific. Many  
 times, Duke's sharp senses of sight, smell, and  
 hearing had saved the men of his Company from a  
 surprise attack.

When the war was over, Duke came back to the  
 United States, but not <sup>to</sup> to the happy home and kind  
 master he deserved. His new master treated Duke  
 cruelly and finally turned him into the street.

A kind policeman who saw poor Duke took him to  
 an animal shelter. There he was well cared for.

One day three young brothers visited the shelter  
 in <sup>a</sup> search of a pet. When they left, Duke went  
 with them to their home in an apartment building.



At last Duke had found a home that he deserved.

Each night he slept beside the bed of the oldest boy. While the boys were at school, Duke lay <sup>on</sup> in the sun <sup>in</sup> on the apartment porch.

One afternoon Duke heard cries of a frightened little girl who lived in an apartment building two doors away. She <sup>has</sup> had been exploring and had climbed <sup>↑</sup> a rickety ladder to an opening in the roof <sup>in</sup> of the third <sup>door</sup> floor porch. When she started down the rickety ladder again, <sup>she</sup> her feet slipped and <sup>fell</sup> she could not find the top rung of the ladder. She was clinging to the sides of the opening, with her feet dangling ten feet above the porch floor.

Duke jumped up and raced down his own stairway. <sup>Then</sup> First <sup>↑</sup> he had to scale a fence that was fourteen feet high, then another which was fifteen feet high. <sup>Then</sup> He ran up to the third floor and climbed the rickety ladder.

<sup>Even</sup> Ever so gently, Duke opened his jaws wide and took the little girl's feet, one at a time, in his strong white teeth. He guided her feet to the rungs of the ladder. <sup>When he</sup> Then, as the child climbed down <sup>and</sup> he moved slowly below her as if to protect her from falling.



When the people of the neighborhood heard <sup>that</sup> what ✓

Duke had done, the German Shepherd dog was

called a hero. Everyone talked of his courage and

let the dog know what they thought of him.

And of course, Duke was happy because friend-ly ✓

ship is the greatest reward a hero <sup>could</sup> can receive.

Substitution: of  
in

Insertion: to <sup>be</sup> <sub>^</sub> the

Omission: a big German Shepherd

Reversal: moved slowly →

Intonational Regression: the greatest

Correctional Regression: There he was ✓  
(successful)



## APPENDIX D

### Transcript of Story Retold by a Child





## DUKE, A DOG HERO

(as retold by one of the children)

Duke was a K-9 Corps in the World War and he served on the Pacific Ocean and -- about warning all the army from surprise attacks; and when the war was over he came to the United States and he didn't like his new master, -- he was cruel, -- and the master didn't want him anymore so he turned him out to the street. Then the kind policeman came along the street and took Duke to a shelter and then a while after three boys came to the shelter and when they had Duke with them and they lived in an apartment building. Every night Duke slept with the oldest boy and he slept on the floor on the mat and when the boys went to school he would lie in the sun on the porch and one day he heard a child scream, and Duke ran down to the third floor, I think, and looked at the fence. One fence was fourteen feet high and the other was fifteen feet high and then he raced up the ladder and first he opened his jaws as wide as he could and ever so gently he pulled, guided the child's legs down to the ladder and the girl climbed down and the neighbors were watching and at the end everybody thought of him that Duke was a hero.

Note: This child received a score of 31 out of a possible 40 for this re-telling. When he was questioned afterward he revealed that "scale" ("... had to scale a fence. . . ") to him meant "saw," which explains why he stated that Duke "looked at" rather than "jumped over" the fences.



## APPENDIX E

### Comprehension Rating



COMPREHENSION RATING (Goodman, 1967)

I.	Recall	
A.	Accuracy	5
B.	Completeness	5
C.	Sequence	5
II.	Characterization	
A.	Recall	5
B.	Depth	5
III.	Plot	
A.	Kernel	5
B.	Subplot	5
C.	Subtleties	5
		<hr/>
		40 points

Note: Goodman's Comprehension Rating served as a base from which the Comprehension Rating for the present study was elaborated.



The division of the story in outline form was made in the following way:

Three Sections

- I. Pre-Kernel
- II. Kernel
- III. Post-Kernel

Four Time Divisions

- A. During the War
- B. After the War
- A. The Rescue
- A. After the Rescue

Eight Subsections

Six in Subplot (Pre- and Post-Kernel)

Two in Kernel

Details in Each Subsection (a, b, c, etc.)

Following is a detailed outline of the story.

I. Pre-Kernel

A. During the War

1. K-9 Corps in the Second World War

a. They acted bravely.

2. Duke, a German Shepherd Dog

a. He was a sentry dog in the Pacific.

b. He had sharp senses.

c. He saved men of his Company from surprise attack.

B. After the War

1. Treatment of Duke by a Master





- a. The master was cruel.
- b. He turned Duke into the street.
- 2. Treatment of Duke by Policeman
  - a. The policeman was kind.
  - b. He took him to an animal shelter.
- 3. Treatment by Three Brothers
  - a. The three brothers were looking for a pet.
  - b. They went to the animal shelter.
  - c. They took Duke to their home in an apartment building.
  - d. Duke slept by the bed of the oldest boy.
  - e. Duke lay in the sun on the apartment porch when the boys were at school.

## II. Kernel

### A. The Rescue

- 1. A Little Girl in Trouble
  - a. She lived in the apartment two doors away.
  - b. She had climbed a rickety ladder to an opening in the roof of the third floor porch.
  - c. Her feet slipped when she started down.
  - d. She clung to the sides of the opening, with her feet dangling ten feet above the porch floor.
- 2. Duke Rescues Her



- a. Duke heard her cries.
- b. Duke jumped up and raced down his own stairway.
- c. He scaled two fences.
  - i. the first fourteen feet high
  - ii. the second fifteen high
- d. He ran up to the third floor.
- e. He climbed the ladder.
- f. With jaws opened wide, he took her feet gently, one at a time, in his teeth.
- g. He guided her feet to the rungs of the ladder.
- h. Duke moved below the girl as if to protect her from falling as she climbed down.

### III. Post Kernel

#### A. After the Rescue

- 1. Duke a Hero
  - a. People in the neighborhood talked of Duke's courage.
  - b. They let Duke know what they thought of him.
  - c. Duke was happy with friendship as a reward.
  - d. Heroes value friendship most highly.



## COMPREHENSION RATING FOR THE PRESENT STUDY

## I. Recall

## A. Accuracy (5 points)

5. Completely accurate
4. Accurate except for one or two details
3. Accurate except for one section of the story
2. Inaccuracies in two sections of the story
1. Substitutions made freely throughout the story
0. Retelling a complete confabulation

## B. Completeness (5 points)

5. Did the child tell something from each subsection and include at least 20 details?
4. Did the child tell something from each section and include at least 15 details?
3. Did the child tell something from at least two sections and include at least twelve details?
2. Did the child tell something from the kernel, at least, and include at least 10 details?
1. Did the child tell less than 10 details from any one section or more?
0. Nothing was recalled.



C. Sequence (5 points)

5. No errors in order of sequence
4. Time divisions in order of sequence but 1-2 errors within one time division
3. Time divisions in order of sequence by 1-2 errors within each of two time divisions
2. Time divisions in order of sequence but 1-2 errors within each of three time divisions
1. Time divisions in order of sequence but more than 1-2 errors within each of one, two, or three time divisions
0. Time divisions not in order

II. Characterization

A. Recall (5 points)

5. Everything important to the understanding of the characters in the story is recalled (with at least 18 details)
4. Something descriptive or explanatory said about all of the characters (Duke, girl, boys, policeman, master) with at least 14 details
3. Something descriptive or explanatory said about at least three of the characters, with at least 10 details given
2. Details describing or characterizing the characters quite limited ( 5-9 details)





1. Details of characterization almost non-existent  
(1-4)

0. None at all

<sup>1</sup> (Duke: a big <sup>2</sup> German <sup>3</sup> Shepherd dog, of the K-9 Corps, sentry <sup>4</sup>  
<sup>5</sup> dog in the Pacific, sharp senses of sight, smell, and hearing <sup>6</sup>  
which had saved men of his Company from a surprise attack, <sup>7</sup>  
<sup>8</sup> quick action to save the girl, his gentleness, protectiveness, <sup>9</sup> <sup>10</sup>  
<sup>11</sup> courage, happy with reward of friendship. <sup>12</sup>  
Duke's master: <sup>13</sup> cruel, <sup>14</sup> turned him into the street. <sup>15</sup>  
<sup>16</sup> Policeman: kind, <sup>17</sup> took Duke to an animal shelter. <sup>18</sup>  
Three brothers: <sup>19</sup> took good care of Duke. <sup>20</sup>  
<sup>21</sup> Girl: little, <sup>22</sup> frightened, <sup>23</sup> in trouble. <sup>24</sup>)

- B. Depth (5 points)

Outstanding depth of understanding and perception of the  
characters as shown by

- a. Tone, intonation, emphasis or rate either in reading or  
retelling the story, which show understanding of characters  
(anything which showed sympathy, excitement, happiness,  
etc., e.g. the tone used in reading "poor Duke.")
- b. Extra explanations which show understanding of character  
(e.g. "he opened his jaws wide so as not to hurt the  
little girl" or "After he came back he was sad because  
he didn't have the same owner.")



- c. Creative or out-of-the-ordinary statements about the characters (e.g. "the dog's family was proud of him" or "the dog was happy because he had a family.")
- d. Choice of words in retelling, particularly words not used in the story (e.g. "a mean master" or "with his sharp teeth so gentle" or "police dog.")
- e. Any other evidence (e.g. "dogs like friendship better than anything else" or "dogs hear better than we do because they're floppier than our ears. Theirs just kind of hang on to the edges and they can hear in all directions.")

Score:

- 5. All 5 of the above in evidence
- 4. 4 of the above in evidence
- 3. 3 of the above in evidence
- 2. 2 of the above in evidence
- 1. 1 of the above in evidence
- 0. No evidence

III. Plot

A. Kernel (5 points)

(e.g. how Duke became a hero in the neighborhood. "One afternoon. . . from falling.")

- 5. At least 10 details from the two sub-sections of the



kernel are told, and it is clear from the retelling that the rescue of the girl is the most important part of the story, (e.g. if only the kernel is told, or if it is emphasized.)

4. The child sees the rescue of the girl as the main part of the story and tells at least 8 details in all from the two sub-sections.
3. The child recognizes the kernel and tells at least 6 details from at least one sub-section of the kernel. If only one sub-section is told, it must be that part which contains the rescue of the girl by Duke.
2. As above in (3) but at least 4 details.
1. As above in (3) but 1-3 details.
0. There is no mention of the rescue of the little girl.

B. Sub-Plot (5 points)

(e.g. the events which preceded and followed the kernel. This includes events from each of the time divisions in the sub-plot: during the war, after the war, after the rescue.)

5. Events are included from three time divisions and six sub-sections.
4. Events are included from three time divisions and five sub-sections.



3. Events are included from at least two time division and at least three sub-sections .
2. Events are included from at least two time divisions at least two sub-sections.
1. Events are included from one time division .
0. Nothing included but the kernel.

C. Subleties (5 points)

- a. Inferences, generalizations, interpretations (e.g. "Duke had a good home with the three brothers," or "they bought Duke" or "he slept on the floor on the mat.")
- b. Use of time words in retelling (e.g. during the war, after the war, on day, each night, etc.)
- c. Understanding and use of words such as K-9 (canine). corps, rung, rickety, scale, dangling. Questioning of the subjects following the retelling often provided insight into how they were using words (e.g. the scaled the fence means the fence was coated with paint and it's in scales" or "a rickety ladder creaks, sways, cracks, makes funny sound. It's old and it might fall down any minute").
- d. Use of adjectives for differentiation (e.g. sharp senses, cruel master, etc.)





- e. Expression during reading or retelling which showed that the child caught a note of excitement, pathos, etc.

Score:

- 5. if 5 of the above are in evidence
- 4. if 4 of the above are in evidence
- 3. if 3 of the above are in evidence
- 2. if 2 of the above are in evidence
- 1. if 1 of the above are in evidence
- 0. if 0 of the above are in evidence





















**B29949**